



THE BIRDS OF AUSTRALIA.

THE
BIRDS
OF
AUSTRALIA

BY
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p. 8, July 17th, 1922, Fitzroy River, North-west Australia.

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PREFACE.

THE completion of this Volume coincides with another step to the agreement in connection with the scientific nomenclature of Australian Birds.

The reorganised Check List Committee of the Royal Australasian Ornithologists' Union has recently forwarded me the draft copy of the specific names they consider recognisable and it is a great pleasure to find that at the present time scarcely any divergence exists. By eliminating personal prejudice the members of the Committee have concluded that the great majority of the names used by me are correct, and are sanctioning them as the official names. In some cases their researches have enabled them to detect errors in some of my results, and such errors I have immediately corrected. In a few cases they still regard the data provided as inconclusive, and these matters will be later agreeably adjusted. At the present time there is scarcely as much disagreement in connection with Australian bird names as there is in the matter of British bird names, though the latter have been handled by so many more workers. With the bird names a matter of little importance, more study will be given to the habits and also to the internal features, and here again I anticipate the majority of the results placed on record for the first time in this work will be emphatically endorsed by later and better placed workers in our study. The Check List Committee have ignored genera in their preparation of their List, utilising the large, incongruous groups, which have no scientific value, in preference to the small groups I have diagnosed in this work. As instance the complete vindication of my studies in the Plovers, published in my third volume, by Dr. Lowe, of the British Museum. Dr. Lowe has just published a study of the osteological features quite independent of my results, and has proven that the internal features completely agree with the superficial ones when due care is paid to each item. Variation in internal characters is also as commonly found as in external features and consequently it is necessary to study long series to value exactly the observed differences. Consequently some of Dr. Lowe's present conclusions will probably be later modified in the

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direction the external features indicate. Also more stress must be laid upon bird habits in connection with classification than has hitherto been allowed, but here still more care must be taken in judging which are adaptive and which not. The best way to arrive at such results will be the study of small groups by local workers, as instance the relationships of "*Gerygone*" and "*Acanthiza*," in their widest sense, and then the inter-relationship of the species. It may prove that the most different superficially are really the most closely allied and *vice versa*. Only detailed study in any connection will assist in elucidating such problems.

I now anticipate by the close of this work, which is now approaching, that the nomenclature of Australian birds will cause less trouble to the next generation than that of any other country.

I have once more to thank all those who have contributed notes.

GREGORY M. MATHEWS.

FOULIS COURT.

18th July, 1922.

GENUS—RHIPIDURA.

RHIPIDURA Vigors & Horsfield, Trans. Linn.
Soc. (Lond.), Vol. XV., p. 246, Feb. 17,
1827. (Type by subsequent designation
Gray, 1840, p. 32) *Muscicapa flabellifera* Gmelin.

Also spelt—

Rhipedura Swainson, Classif. Birds, Vol. II., p. 193, July 1, 1837.

Rhypidura Ramsay, Proc. Linn. Soc. N.S.W., Vol. I., p. 43, Feb. 1876.

Ripidicala Boie, Neues Staats. Magazin
(Schleswig), Vol. I., heft 2, p. 489, 1832.
Type (by subsequent designation Mathews,
List Birds Austr., p. 184, 1913) *Muscicapa flabellifera* Gmelin.

Also spelt—

Rhipidicala Gray, App. List Gen. Birds, p. 9, (April) 1842.

Rhipidicidura "Boie" Gray, Handl. Gen. Sp. Birds, Vol. I., p. 330, (pref.
May 10) 1869: *nom. nudum*.

THE series of birds classed together under *Rhipidura* constitute a compact group of "Flycatchers," which probably merit family rank and which are characterised by their long Fantails. They vary in coloration, size of bill, tail and legs and feet. The present one, upon which the genus was founded, has a very short bill, the rictal bristles exceeding it in length, small legs and feet, and long tail of broad soft feathers.

When Sharpe prepared the *Catalogue of the Birds in the British Museum* he did not split up this group until he considered *R. euryura* Müller, when for this species alone he proposed a new genus *Neomyias* on account of its small feet; he compared these with the bill, making the tarsus shorter than the culmen, which it may have been according to his measurement, but I make it a millimetre longer, but that is valueless. *Rhipidura buttikoferi*, named by Sharpe afterward, and which Hartert makes a subspecies of *rufiventris* along with the species I have differentiated generically as *Setosura*, shows almost exactly the same measurements both as to culmen and tarsus.

In *Rhipidura* the bill is very small, while in *Setosura* it is very long and broad. It is elongately triangular, the culmen notably keeled, the sides depressed, a little bowed, the tip anteriorly pinched; the lower mandible is flattened, the nostrils are open, semi-operculate and hidden by nasal bristles.

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The nasal and rictal bristles are numerous and very long, exceeding the bill in length. The fourth and fifth primaries are equal and longest, the third and sixth appreciably shorter, the latter exceeding the former; the second is less than the ninth and is equalled by the secondaries. The first primary is short, about half the length of the second and not much more than one-third the length of the longest primary. The tail is very long and fan-shaped, composed of twelve broad feathers, the shortest about equal to the length of the wing.

The feet are small and delicate; the tarsus is obscurely scutellated anteriorly. The middle toe is longest, the inner one a little less than the outer, the claws weak; the hind-toe is strong and claw comparatively stronger, so that the hind-toe and claw appear about equal to the front toes.

The distribution of the four Rhipiduroid genera in Australia needs a remark. *Rhipidura* is generally distributed even into Tasmania, and extra-limital into New Zealand, New Caledonia, etc. *Howeavis* is a northern form, which reaches on the east as far south as Victoria, but does not go to Tasmania; while on the west it just penetrates into the north-west. It is more common to the north. *Setosura* is another northern form which does not pass below the tropics, either east or west, and is well distributed outside Australia to the direct north. *Leucocirca* is also northern, and has ranged over the whole of Australia, but again not reaching into Tasmania. As regards coloration, while the three former may be closely related, the last named seems quite different in detail. As these little birds now take on the adult coloration in the nest, we are dependent upon the subspecific plumage changes for information, and at the present time we cannot speculate much as we cannot gauge whether the colour changes are primitive or due to loss.



H. Grönvold, del.

Witherby & Co.

RHIPIDURA FLABELLIFERA.
(WHITE-SHAFTED FANTAIL).

RHIPIDURA FLABELLIFERA.

FANTAIL.

(PLATES 400, 401.)

[MUSCICAPA FLABELLIFERA Gmelin, Syst. Nat., pt. II., p. 943, April 20th, 1789 : Dusky Sound, New Zealand. Extra-limital.]

Rhipidura albiscapa Gould, Birds Austr., pt. 1, Dec. 1st, 1840 : Tasmania.

Rhipidura flabellifera Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 247, 1827 ; Swainson, Nat. Libr., Flycatchers, p. 124, pl. x., 1838.

Rhipidura albiscapa Gould, Birds Austr., pt. 1 (Vol. II., pl. 83), Dec. 1st, 1840 ; *id.*, Proc. Zool. Soc. (Lond.), 1840, p. 113, May 1841 ; *id.*, Handb. Birds Austr., Vol. I., p. 238, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 310, 1879 ; Ramsay, Tab. List. Austr. Birds, p. 6, 1888 ; Hall, Key Birds Austr., p. 17, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 108, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 121, 1903 ; Berney, Emu, Vol. IV., p. 43, 1904 (N.Q.) ; *id.*, *ib.*, Vol. V., p. 72, 1905 (N.Q.) ; A. G. Campbell, *ib.*, p. 141, 1906 (Kang. Island) ; Mathews, Handl. Birds Austral., p. 65, 1908 ; Hall, Emu, Vol. IX., p. 127, 1910 (S.A.) ; Barnard, *ib.*, Vol. XI., p. 25, 1911 (N.Q.) ; Chandler, *ib.*, Vol. XIII., p. 38, 1913 (Vic.) ; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 158, 1913 ; Macgillivray, Emu, Vol. XIII., p. 168, 1914 (N.Q.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 23, 1917 (N.Q.).

Rhipidura nassata "Ill." Bonaparte, Consp. Gen. Av., Vol. I., p. 323 (Feb. 3rd), 1851 ; *nom. nudum* : Tasmania.

Rhipidura preissi Cabanis, Mus. Hein., Vol. I., p. 57, (after Oct. 23rd) 1851 : West Australia ; Gould, Handb. Birds Austr., Vol. I., p. 240, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 310, note, 1879 ; Ramsay, Tab. List Austr. Birds, p. 6, 1888 ; Hall, Key Birds Austr., p. 17, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 110, 1901 ; Hall, Ibis, 1902, p. 134 ; Milligan, Emu, Vol. II., p. 71, 1902 (W.A.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 124, 1903 ; Milligan, Emu, Vol. IV., p. 50, 1904 (W.A.) ; Mathews, Handl. Birds Austral., p. 65, 1908 ; Whitlock, Emu, Vol. VIII., p. 180, 1909 (W.A.) ; Hill, *ib.*, Vol. X., p. 275, 1911 (N.W.A.).

Rhipidura saturata Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 311, (pref. March) 1879 :

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- Tasmania. Not *R. saturata* Salvadori, Ann. Mus. Civ. Gen., Vol. XII., p. 323, 1875 ; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 239, 1887 ; *id.*, *ib.*, 1887, p. 87, 1888.
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id., List Birds Austr., p. 185, 1913.

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DISTRIBUTION. Australia and Tasmania.

Adult female. Crown of head, sides of neck, hind-neck, back, scapulars and lesser upper wing-coverts greyish-brown ; median and greater series blackish-brown tipped with white, bastard-wing, primary-coverts and flight-quills blackish inclining to whitish on the inner edges of the last and on the outer ones of some of the inner secondaries ; middle tail-feathers blackish, becoming paler on the outer feathers, which have white shafts, tipped with white, and fringed with white on the outer web of the outermost feather ; a spot of white above and in front of the eye ; ear-coverts white ; rictal bristles black and directed forward ; chin and throat white with black bases to the feathers ; sides of body dusky-grey ; breast and abdomen pale buff ; lower flanks, under tail-coverts, axillaries and under wing-coverts white ; under-surface of quills hair-brown paler on the inner margins ; lower aspect of tail dark brown with broad white margins to feathers. Bill dark horn ; eyes hazel ; feet black. Total length 152 mm. ; culmen 7, wing 75, tail 82, tarsus 16. Figured. Collected at Homebush, New South Wales, in May 1887 and is the type of *alisteri*.

Adult male. From the same locality, similar to the above.

Adult female. Crown of head, sides of face, and a band across the lower throat black ; back, wings, and upper tail-coverts soot-black ; greater series of upper wing-coverts minutely tipped with white ; outer margins of inner secondaries fringed with white ; tail blackish with white shafts and white margins to the outer feathers which become wider on the outermost feathers ; a supraloral spot of white and a similar one on the ear-coverts ; throat white with black bases to the feathers ; breast, and sides of body blackish intermixed with buff ; abdomen and lower flanks whitish-buff ; under tail-coverts and under wing-coverts greyish-white ; under-surface of flight-quills hair-brown ; lower aspect of tail blackish-brown with white shafts and white margins to the feathers. Bill and feet black ; eyes hazel. Total length 154 mm. ; culmen 7, wing 72, tail 85, tarsus 16. Figured. Collected on King Island, Bass Straits, on the 24th of April, 1914.

Adult male. From the same locality, similar to the above.

Adult female. General colour of the upper-surface dark plumbeous-grey including the top of the head, sides of face, hind-neck, sides of neck, entire back, and upper wing-coverts ; median and greater upper wing-coverts tipped with white like the outer margins of the inner secondaries ; flight-quills dark hair-brown paler on the inner edges, outer margins olive-brown ; upper tail-coverts and tail blackish, the outer feathers of the latter are paler, have white shafts, and broadly fringed with white ; a supraloral spot of white which extends to above the eye ; ear-coverts more or less white ; lores blackish ; rictal bristles black and only feebly developed ; throat white, which extends in line towards the sides of the neck ; breast, abdomen, and sides of the body pale buff ; under tail-coverts, axillaries and under wing-coverts

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whitish like the inner edges of the quills below; remainder of the quills below hair-brown; lower aspect of tail dark brown with white shafts and white margins to the feathers. Bill dark lead-grey; eyes deep brown; feet lead-grey. Total length, 148 mm.; culmen 7, wing 72, tail 83, tarsus 17. Figured. Collected at Wilson's Inlet, South-west Australia, on the 20th of March, 1911.

Adult male. From the same locality, similar to the above.

Adult male. Crown of head, dark ash-grey with dark brown central shaft-streaks to the feathers; back, scapulars, and upper wing-coverts, uniform dark ash-grey, except the last, which have the median and greater series tipped with white; bastard-wing and primary-coverts darker than the back slightly edged with white at the tips; outer aspect of flight-quills similar; the innermost secondaries fringed with greyish-white on the outer webs and at the tips; tail-feathers blackish-brown becoming paler on the outer feathers which have white shafts and are tipped with the same colour—more extensively on the outermost where it occupies the whole of the outer web; sides of the face similar to the top of the head; a white supraloral streak, which is continued over the eye and along the sides of the crown; chin and throat white; breast and abdomen pale cinnamon-buff; under tail-coverts white; under wing-coverts and axillaries cream-white; under-surface of quills dark brown, paler on the inner edges; lower aspect of tail dark brown, white on the apical portion and along the outer web of the outermost pair of feathers. Bill black, with base of lower mandible white; eyes brown, feet black. Total length 146 mm.; culmen 8, wing 67, tail 77, tarsus 17. Figured. Collected at Point Torment, King's Sound, North-west Australia, on the 4th of April, 1911.

Adult female. From the same locality, similar to the above.

Adult female. Crown of head, nape, back, scapulars, upper tail-coverts, and upper wing-coverts greyish mouse-brown, median and greater series tipped with white; primary-coverts, primary and secondary quills blackish-brown with white margins to the outer webs of the inner secondaries; middle tail-feathers uniform blackish, the outer feathers greyish-brown with white shafts and broadly fringed with the same colour on the inner webs and tips—extending along the outer web of the outermost pair of feathers; base of fore-head, lores, sides of face and a band across the fore-neck blackish; a spot of white above and in front of the eye; ear-coverts fringed with white; chin and throat whitish; rictal bristles black; breast, abdomen, flanks, under tail-coverts, and under wing-coverts buff paler and inclining to cream colour on the under tail-coverts and under wing-coverts; under-surface of quills greyish-brown becoming paler on the inner edges; lower aspect of tail dark brown with more or less white on the lateral feathers. Bill and legs black; eyes brown. Total length 153 mm.; culmen 6, wing 75, tail 84, tarsus 17. Figured. Collected on the Leichhardt River, Queensland, on the 14th of June, 1910.

Adult male. From the same locality, similar to the above.

Adult male. Crown of head, sides of face, and fore-neck black; a semicircular supraloral line of white extending to above the eye; ear-coverts for the most part white; back, scapulars, and upper wing-coverts soot-black, the median and greater series minutely tipped with white; bastard-wing, primary-coverts, and flight-quills blackish-brown; tail black on the two middle feathers, becoming paler on the outer ones, which have white shafts with more or less white at the tips and extends along the outer web of the outermost feathers; rictal bristles black, directed forwards, and well developed; some of the feathers on the fore-head fringed with white; abdomen pale buff; sides of body blackish; lower flanks, under tail-coverts, axillaries, and under wing-coverts white; under-surface of quills smoke-brown; lower aspect of tail blackish, some of the outer feathers

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fringed with white. Bill and feet black; eyes dark brown. Total length 152 mm.; culmen 7, wing 81, tail 88, tarsus 16. Figured. Collected near Kuranda, North Queensland, on the 7th of December, 1912.

Adult female. From the same locality, similar to the male.

Adult male. Crown of head, sides of face, hind-neck, entire back, scapulars and upper tail-coverts pale slate-grey with a tinge of fawn colour on the back; wings hair-brown, the lesser coverts tipped with fawn colour, the median, greater, primary-coverts, and innermost secondaries tipped with white; inner margins of flight-quills white; middle tail-feathers blackish-brown, becoming paler and fading to greyish-brown on the outer ones, which are extensively tipped with white, the shafts also white, and the outer web of the outermost pair entirely white; lores dusky; the feathers surrounding the eye and sides of the face intermixed with pale fawn colour; rictal bristles black, numerous, and directed forward; chin and throat dull white, which extends on to the sides of the neck at the back of the ear-coverts, where it is buffy-white; breast and abdomen fawn colour, becoming white on the vent and flanks; under tail-coverts pale grey; axillaries and under wing-coverts buffy-white; under-surface of flight-quills hair-brown with pale inner edges; lower aspect of tail dark brown with white shafts and white tips to the feathers. Collected at Point Torment, North-west Australia, on the 12th of March, 1912.

Adult female. From the same locality, similar to the above male.

The following description is taken from the type specimen of *Rhipidura phasiana* De Vis which I drew up in 1907.

General colour above ashy-brown, with an ochreous tinge; the wing-coverts dusky-brown, with large white spots at the ends; primary-coverts dusky-brown fringed with white; quills dusky-brown; the innermost secondaries edged with white; upper tail-coverts and central tail-feathers dull ashy-brown with dusky cross-bars under certain lights; remainder of tail-feathers dusky-brown with white shafts and a considerable amount of white towards the ends which are also white, the outermost feather being white for nearly the whole length with the base dark brown; crown of the head somewhat darker ashy than the back with a slight evidence of a pale ochreous collar on the nape; lores conspicuous with a faintly indicated white eyebrow; feathers below the eye and ear-coverts dusky-ash colour; cheeks and throat white followed by a shade of ashy-grey on the fore-neck; remainder of under-surface from the fore-neck downwards pale isabelline-buff.

Immature male. Crown of head and sides of face ash-grey with more or less white over and behind the eye; hind-neck, back, and upper tail-coverts rather darker with white intermixed here and there and tinged with ochreous on the middle of the back; upper wing-coverts greyish-brown broadly tipped with white more narrowly on the primary-coverts; flight-quills hair-brown rather paler on the margins of the inner webs and edged with white on the outer webs and tips of the innermost secondaries; tail, dark brown with conspicuous white shafts to the feathers and broadly margined with white on the apical portion; rictal bristles black and directed forward; chin and throat white; breast pale fawn colour; abdomen, flanks and tail-coverts white; axillaries and under wing-coverts buffy-white; under-surface of flight-quills hair-brown; lower aspect of tail dark brown with white shafts and extensively marked with white on the apical portion; the outer web of the outermost feathers entirely white. Collected at Point Torment on the 17th of January, 1911.

Nestling male. Crown of head, sides of face and back dusky-brown with an indicated narrow line of rufous over the eye and along the sides of the crown, the feathers on the fore-part of the crown minutely edged with rufous; scapulars similar but

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much more broadly tipped; the margins to the feathers on the back narrower and darker, inclining to deep chestnut; upper wing-coverts dark brown with buff or smoky-white tips to the feathers which is scarcely perceptible on the bastard-wing and absent on the primary-coverts and flight-quills except the inner secondaries, which are margined with whitish grey; tail only partially developed, has the middle feathers black, the outer ones broadly tipped with white, dark brown at the base, and the outer web of the outermost feather entirely white; chin and throat whitish with dark bases to the feathers; fore-neck rust-brown becoming paler on the breast, abdomen, under tail-coverts and tail below, all of which are buffy-white; under tail-coverts also buffy-white; under-surface of flight-quills, hair-brown. Collected at Olinda, Victoria, on the 1st of December, 1912.

Young, with down still attached to the feathers. General colour above sooty-brown, including the head, back, and wings, becoming rufous-brown on the lower back; upper wing-coverts tipped with buffy-white; quills dark brown with pale edges to the innermost secondaries; middle tail-feathers blackish, the outer ones becoming paler and tipped with white—the outermost pair almost entirely white; throat and breast rufous-brown; abdomen and under tail-coverts pinky-white. Collected in Tasmania in November 1903.

Nest. “Wineglass-shaped,” without the foot-piece. Composed of dried grass stems and shreds of bark held together with cobwebs and lined with finer material. The tail-piece varies in length. Outside measurement $2\frac{1}{4}$ to $2\frac{1}{2}$ inches by $1\frac{1}{4}$ to $1\frac{3}{4}$ inches in depth. Inside $1\frac{1}{2}$ by 1 inch.

Eggs. Clutch, two to four sometimes. Ground-colour buff marked (sometimes forming a zone round the larger end) with rufous and lavender spots. 16-17 mm. by 12-13.

Breeding-season. October to January.

WHEN Forster visited New Zealand he collected a majority of the common birds and his son George made paintings of them. Upon the 155th plate, still preserved in the British Museum (Natural History), is written: “Fantailed Flycatcher, Lath., Gen. Syn., II., p. 340, No. 33, tab. 49, from this drawing.” The painting was made of a bird from New Zealand and is dated “Dusky Bay, N.Z., March 28, 1773.”

Gmelin gave a Latin name to Latham’s description, *Muscicapa flabellifera*, and this name was accepted by Latham later. It may be noted that Forster had described the species in detail and had given it the name *Muscicapa ventilabrum*, but his MS. was not published until 1844, long after his death, when Lichtenstein edited it.

A figure of a similar bird appears among the Watling drawings, but nothing at all exactly alike, though it must have been quite a common bird. It may be that it was not just at the settlement, while Caley stated: “The species is very common about Paramatta; and I do not recollect having missed it at any period of the year.”

When Vigors and Horsfield recorded the Australian birds in the Linnean Society’s collection they did not differentiate the New Zealand bird from the



H. Grönvold, del

Witherby & Co.

RHIPIDURA FLABELLIFERA.
(WHITE-SHAFTED FANTAIL).

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Australian one, but introduced a new genus *Rhipidura* for it and the other Australian Fantails.

Caley's notes read: "There is something singular in the habits of this bird. It frequents the small trees and bushes, from whence it suddenly darts at its prey, spreading out its tail like a fan, and to appearance turning over like a *tumbler Pigeon*, and then immediately returning to the same twig or bough from whence it sprang. These actions it continues constantly to repeat. The skin is very tender; and it is difficult after having taken it off the body to restore it again to its proper shape."

Gould wrote: "In Tasmania I have seen the White-shafted Fantail in the depth of winter in the gullies on the sunny sides of Mount Wellington; and it is my opinion that it only retires at this season to such localities as are sheltered from the bleak south-westerly winds which then so generally prevail, and where insects are still to be found. The bird is also subject to the same law on the continent of Australia; but as the temperature of that country is more equable, its effects are not so decided. It is generally found in pairs, but I have occasionally seen as many as four or five together. It inhabits alike the topmost branches of the highest trees, those of a more moderate growth, and the shrouded and gloomy foliaged dells in the neighbourhood of rivulets; from these retreats it darts out a short distance to capture insects, and in most instances returns again to the same branch it had left. While in the air it often assumes a number of lively and beautiful positions, at one moment mounting almost perpendicularly, constantly spreading out its tail to the full extent, and frequently tumbling completely over in the descent; at another it may be seen flitting through the branches, and seeking for insects among the flowers and leaves, repeatedly uttering a sweet, twittering song. In its disposition this little bird is one of the tamest imaginable, allowing of a near approach without evincing the slightest timidity, and will even enter the houses of persons resident in the bush in pursuit of gnats and other insects. During the breeding-season, however, it exhibits extreme anxiety at the sight of an intruder in the vicinity of its nest."

Mr. F. E. Howe has written me: "Although this is a migratory form a fair number remain in the district throughout the year. What naturalist has not been enchanted with its beautiful nest or wondered at the antics of this lively little bird? At Ringwood a female of *Pachycephala gutturalis* so much admired a nest that she was tempted to sit in it until driven off by the Fantail. The clutch is as a rule three, but often two eggs only are laid and two broods are reared. Eggs have been seen early in October and as late as the end of January. The young of this bird are born blind and featherless; gape creamy-yellow and mouth orange. At five days old the eyes are first opening, the primaries

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are in long blue quills, and the breast, sides and flanks are well feathered and of a creamy-rufous. The general colour above was dark grey with long rufous down adhering to the feathers; legs lilac. At ten days old the irides were very dark brown, and the gape had assumed a yellowish colour; abdomen white; throat and breast light rufous; feathers on back dark grey edged with brown; primaries dark brown edged with light buff; eyebrow light brown with the feathers just breaking, brown down all over body; legs and feet lilac. They would probably leave the nest in about three or four days. Both parents help in the tasks of building the nest and feeding the young."

Mr. L. G. Chandler has also sent me notes giving details of the young, confirming Howe's account, and adding: "It is pleasing to notice the large increase in numbers of this splendid insectivorous bird. One day at Ringwood I saw the bird in dozens. The amount of insects they destroy, as they zigzag back and forwards through a host of small flies, must be enormous. The nest is placed at varying altitudes, but generally close to the ground. I found a nest on one occasion where the sitting bird was nearly destroyed by a bush fire. The flames were quite close to the bird when I noticed it, and I had to push it off the eggs before it would leave. The eggs were hard set, which accounted for the devotion of the bird."

Mr. Frank Littler has written me: "Distributed throughout Tasmania and islands of Bass Straits. The food consists almost entirely of insects, which are mostly captured in the air. When flitting from bough to bough it has a rather head-over-heels kind of flight. It is very tame in disposition, seeming to have practically no fear of man. It enters the houses in the bush and captures the flies on the window, and frequently comes about the gardens in the towns. The flight is weak and wavering, many strange antics being performed on the wing. The song is weak, but pretty."

Mr. A. G. Campbell observes: "King Island specimens, though smaller, show no difference in plumage from the Tasmanian ones, and farther on the mainland, in southern Victoria, birds (presumably forms of *R. albiscapa*) can be found quite as dusky and with as little white on the tail as the insular species. The patches of white may possibly vary with age, but in a general way the mainland bird shows large markings on the tail-feathers. The fledgeling of the Tasmanian race is dark brown suffused with reddish-brown; eyebrows, edges of secondaries and wing-coverts light brown; outer tail-feathers tipped grey; abdomen light fawn."

McClymont has written: "The weak flight of the Fantail (*Rhipidura diemenensis*) is in marked contrast to the exquisite curves oftentimes described by the Wood Swallow. The perpetual jerky movements of this Flycatcher, both when on the perch and when on the wing, suggest a limited range of vision and

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the need of extending it. The young birds of the first year have a white line across the throat above the black throat mark, and white spots on the head above the eyes and behind the ears. The remainder of their plumage is grey, except the breast, which is pale buff. Could a prize be offered for the handsomest nest, it would probably be awarded to the Humming Birds, whose nests are marvels both of structural beauty and of ornamentation. The nest of *Rhipidura diemenensis* somewhat resembles the Humming Bird's model, but is, of course, larger, and has a short stem added to the cup or bowl."

Mr. E. J. Christian wrote me also from Victoria: "This little bird is an undoubted favourite; being not in the least shy, he will always attempt to make friends with you. I was one day shooting rabbits, and just for an experiment I pointed my rifle at one of these little birds. Seeing me stop, he came closer and had the boldness to circle round and round the very foresight. In the south he is the most common Fantail, and may be seen along any creek. It very rarely flies in a straight line, but its course is more of a wavy nature. It can't keep still one moment; it flies up and circles round, giving vent to a peculiar note, which sounds like 'tinny.' This is generally made once only while circling before resting again, but sometimes is repeated two or three times. After repeating these evolutions three or four times it breaks out into a short, beautiful song. To hear these birds in a shady place by water is one of the many treats which nature can give to the naturalist."

Mr. J. W. Mellor writes: "This is our common South Australian species, and is found plentifully about the Mount Lofty Ranges, and is an occasional visitor to the Adelaide Plains, but this is not often. I have noted it on rare occasions singly at the Reedbeds and have also seen it in the Flinders Ranges and on Eyre's Peninsula."

Mr. T. P. Austin has written me from Cobbara, New South Wales: "I cannot say the present species is common anywhere in this district, but a few pairs are to be sparingly met with in the scrubs, resorting mostly to the saplings, but frequently seen playing about the topmost branches of the large ironbark trees, where they occasionally place their nests, but they are much more often found nearer the ground. It is quite fearless of man, often coming inside of houses to catch flies. Many years ago, while living in Geelong, Victoria, these friendly little creatures often came into our dining-room, while we were having breakfast, always perching on the gas chandelier, from which they would dart about the room, and on to the window-pane catching flies. Excepting when on a nest, I have never seen one remaining still for more than a few seconds at a time; it is always on the move, darting about to capture some flying insect or fluttering more slowly from twig to twig, and even when perched for a moment, the tail is continuously swaying, and the wings are slightly expanded, ready

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to be off again immediately, and frequently uttering its tiny, squeaky little song; this is always to be heard as they playfully chase each other, a habit they appear to love. The nest is a marvel of neatness, and very difficult to discover. When breeding appears to be the only time they resent the approach of man, and if their nest is examined while in the course of construction, it is almost sure to be deserted, and if approached when containing young the parents become most ferocious little creatures."

Broadbent recorded: "This pretty Flycatcher is common all over the Cardwell district, both mountain and plain, and so tame that it will sit on the barrel of the gun."

Under the title *Rhipidura phasiana* Macgillivray recorded that: "The Pheasant Fantail was several times noted, and specimens obtained, on the Archer River by Mr. McLennan."

Hall, from Eyre's Peninsula, South Australia, wrote: "*Rhipidura albiscapa*. Under-surface creamy-white, with outer tail-feathers nearly white, excepting outer web."

Mr. C. Belcher says: "The flight is erratic, with much movement of the tail, which, indeed, is never at rest when the bird is awake. No one could describe the song; it is cheerful and varied, if a little 'tinny'; one could imagine it to be the tuning-up of a fiddle in some orchestra of Lilliputian wood-sprites."

A note by A. W. Milligan, from West Australia, reads: "*R. preissi*. These charming little birds were very plentiful on the coastal brooks. Although I was convinced the birds were nesting, I was unable to find a nest. These tame creatures, although held in high repute by the 'whites,' are not so by the aborigines. With the latter they are regarded as a bird of ill omen. If upon the morning of the departure of a hunting expedition one of these little fellows put in an appearance at camp, the blacks at once abandoned the expedition."

Mr. J. P. Rogers, concerning the north-western form, states: "In habits this bird is the same as *R. albiscapa* and *preissi*, but is only found in the Mangroves."

Mr. Tom Carter has sent me the following full account: "The Western Fantail is found from the mid-West to the South-west Australia, subject to a certain amount of local migration or movements. About Point Cloates they were mostly seen in the winter months, arriving about June, but were by no means so common as they are farther south. They were frequently to be seen on the beach feeding on the swarms of minute flies that occur on the heaps of seaweed washed high up on the beach. These birds were observed at Kellerberin in January 1903. About Broome Hill they are seldom seen in the summer months, but a good many seem to 'arrive' about the end of May or early

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in June—thus, June 20, 1908: Two seen. May 20, 1910. First one seen. September 26, 1910. A nest containing three incubated eggs was found on the extremity of a pendent branch of *Casuarina* on the Salt or Pallinup River, about eight feet from the ground. In trying to pull the branch down to see into the nest the eggs were unfortunately jerked out and broken. The nest was beautifully constructed of fine bark, She-oak needles, and some grass, bound together with spiders' webs. It was deep for its size, which was like a wineglass."

Whitlock writes of the birds on the East Murchison, mid-West Australia: "I had the vexation to lose a specimen of a *Rhipidura* that may have only been *R. preissi*, but may equally well have been *R. albicauda*. It was the only one I saw during the trip."

When Gould examined the Australian birds he at once separated them from the New Zealand bird as a distinct species, giving as the locality "Van Diemen's Land and South Australia." He figured a Tasmanian specimen, and later wrote: "Specimens of this bird from Tasmania are always much darker than those of the continent, and have the tail-feathers less marked with white; others from Western Australia, again, are somewhat lighter in colour, and have the white markings of the tail more extensive than in those I collected in South Australia or New South Wales; the bird from Western Australia has been characterised as distinct and named *R. preissi* by M. Cabanis."

When Sharpe prepared the fourth volume of the *Catalogue of the Birds in the British Museum* he distinguished the continental form from the Tasmanian one as a distinct species, but gave a new name to the latter. The name selected had been previously used, so he named it anew, while simultaneously, but with later publication, Ramsay attempted to amend Sharpe's name. All these names sink as synonyms of Gould's original name as the type locality of that can only be accepted as Tasmania, and Witmer Stone has shown that a Tasmanian bird was considered typical by Gould himself. I therefore corrected the erroneous separation of the Tasmanian bird, restoring to it Gould's name, but differentiated the New South Wales form as a distinct subspecies. I called it *Rhipidura albiscapa alisteri*, writing: "Differs from typical *R. albiscapa* (Gould) in much lighter colour above and smaller size and in having the collar on the throat much less pronounced."

Previous to this two other species had been named, *Rhipidura phasiana* by De Vis from the Norman River, Kimberley, Queensland, and *Rhipidura albicauda* by North from Stoke's Pass, Central Australia. When I prepared my "Reference List" it became obvious that all these were only subspecies and were closely related to the New Zealand *flabellifera*, and that the latter was less differentiated from the east Australian form than the northern forms were.

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I therefore classed all under the species name *flabellifera* and admitted ten Australian subspecies. Five of these were proposed as new, as follows :

Rhipidura flabellifera victoriæ.

“Intermediate between *R. f. alisteri* and *R. f. albiscapa* ; nearer the latter in having the dark back from which it is easily separable by its smaller size. (Ringwood) Victoria.

Rhipidura flabellifera whitei.

“Differs from *R. f. alisteri* in its larger bill and slightly darker upper coloration. (Grange) South Australia.

Rhipidura flabellifera subphasiana.

“Differs from *R. f. phasiana* in its paler coloration above and richer colour below, and easily separable from *R. f. preissi* in generally lacking the pectoral band. Derby, North-west Australia.

Rhipidura flabellifera harterti.

“Differs from *R. f. alisteri* in its lighter grey coloration above, less marked band on the breast, and more uniform paler abdomen coloration. Inkerman, Queensland.

Rhipidura flabellifera frerei.

“Differs from *R. f. harterti* in its smaller size : 70 mm. (*harterti*, wing 75 mm.) Bartle Frere, North Queensland.”

I laid little stress upon the coloration of the tail, though this had been the chief factor used previously, as North had named his species *R. albicauda* as the same except the tail, which had “all but the two central feathers pure white narrowly edged with blackish-brown on the basal half of the outer webs of all the feathers except the outermost one on either side.” Of course, as North was not concerned with the New Zealand species, he did not recognise that the above description exactly applied to birds from that far distant locality. In the latter the coloration of the upper and under-surfaces are different from those of the former, but North never mentioned those at all.

I examined North's type when in Australia in 1914 and found “two outer tail-feathers pure white, the next with a fringe of brown on the outer web ; this fringe gets wider on the 4th and 5th, but never covers the entire web. Middle tail-feathers all brown.”

When they recorded the birds of Cardwell and district, Campbell and Barnard felt compelled to make the following confession : “This familiar form of Fantail was another puzzle to us, because the coastal bird seemed to differ from the bird of the ranges. Yet there could not, ornithologically, be two forms (or subspecies) of the same species in the one locality not many miles apart. The coastal bird appeared to be typical *albiscapa*, while its repre-

FANTAIL.

sentative in the ranges was darker. Specimens of each kind were procured for reference."

I have introduced the above item, as it is quite possible that many more subspecies may exist, and also to explain that two subspecies can exist in the "same locality not many miles apart" if conditions are suitable. I wish it were possible to impress upon the minds of the older ornithologists that subspecies are merely "geographical variations," and that the "geography" is physical, and consequently miles are negligible where, as in this case, the variation is governed by height. A different subspecies may exist at the top of a mountain from the form dwelling at the bottom. As it has occurred in this species, I might also point out that the amount of variation is not governed by distance, and that a form may differ more from the adjacent subspecies than it does from one far distant. Thus this species, as well as ranging over Australia and Tasmania, extends over the whole of New Zealand and the outlying islets, occurs at Lord Howe and Norfolk Islands, New Caledonia and the New Hebrides. The New Hebrides form is practically inseparable from the Tasmanian subspecies, while the Central Australian bird is very easily picked out from other Australian forms, but is very like in every detail to the New Zealand race.

The form sent from Buchanan Island, Northern Territory, I have named

Rhipidura flabellifera buchanani.

"Differs from *R. f. subphasiana* in its larger size and lighter coloration."

Consequently, as regards Australia, the subspecies admitted are the same as those listed by me in 1913.

Rhipidura flabellifera alisteri Mathews.

New South Wales; South Queensland.

Rhipidura flabellifera victoriae Mathews.

Victoria.

Rhipidura flabellifera albiscapa Gould.

Tasmania.

Rhipidura flabellifera whitei Mathews.

South Australia.

Rhipidura flabellifera preissi Cabanis.

South-west Australia.

Rhipidura flabellifera subphasiana Mathews.

North-west Australia.

Rhipidura flabellifera buchanani Mathews.

Western Northern Territory.

Rhipidura flabellifera phasiana De Vis.

Western North Queensland (Kimberley district) and Eastern Northern Territory..

THE BIRDS OF AUSTRALIA.

Rhipidura flabellifera frerei Mathews.

North Queensland (Cape York to Bartle
Frere).

Rhipidura flabellifera harterti Mathews.

Mid-Queensland.

Rhipidura flabellifera albicauda North.

Central Australia.

Extra-limitally the species ranges to Lord Howe Island, Norfolk Island,
New Zealand, New Caledonia and the New Hebrides, as :

Rhipidura flabellifera cervina Ramsay.

Lord Howe Island.

Rhipidura flabellifera pelzelni Gray.

Norfolk Island.

Rhipidura flabellifera flabellifera (Gmelin), etc.

New Zealand.

Rhipidura flabellifera bulgeri Layard.

New Caledonia.

Rhipidura flabellifera brenchleyi Sharpe.

New Hebrides.

and probably some others.

GENUS—HOWEAVIS.

HOWEAVIS Mathews, Austral Av. Rec., Vol. I.,
pt. 5, p. 111, Dec. 24, 1912. Type (by
original designation) *Muscicapa rufifrons* Latham.

DIAGNOSED as "Differs from *Rhipidura* in its much longer stouter bill and stouter feet with a proportionately longer first primary."

This genus is the nearest of the series to the typical *Rhipidura*, but the bill is noticeably bigger, as are the feet, even as Gould indicated. It is similar in coloration, as is the following genus, and it is possible that these three may be grouped together, but even if so *Leucocirca* could not be admitted to the series. The differences in these three are as follows: In *Howeavis* the bill is intermediate between *Rhipidura* and *Setosura*, but the feet are larger than in either. The wing in *Setosura* is equal to the tail, while in the other two it is easily exceeded by the tail.

Order PASSERIFORMES.

No. 476.

Family MUSCICAPIDÆ.

HOWEAVIS RUFIFRONS.

RUFOUS FANTAIL.

(PLATE 402.)

MUSCICAPA RUFIFRONS Latham, Index Ornith. Suppl., p. L., (after May 30th) 1801: New South Wales.

Muscicapa rufifrons Latham, Index Ornith. Suppl., p. L., 1801; Lewin, Birds New Holland, pl. 17, 1808.

Rhipidura rufifrons Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 248, 1827; Gould, Birds Austr., pt. XXIII. (Vol. II., pl. 84), June 1st, 1846; *id.*, Handb. Birds Austr., Vol. I., p. 240, 1865; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 50, Feb. 1876 (N.Q.); Ramsay, *ib.*, Vol. II., p. 182, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 319, 1879; Ramsay, Tab. List Austr. Birds, p. 6, 1888; Hall, Key Birds Austr., p. 17, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 112, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 127, 1903; A. G. Campbell, Emu, Vol. VII., p. 38, 1907 (Vic.); Mathews, Handl. Birds Austral., p. 65, 1908; Barnard, Emu, Vol. XI., p. 25, 1911 (N.T.).

Rhipidura dryas Gould, Proc. Zool. Soc. (Lond.), 1842, p. 132, Feb. 1843: Port Essington, Northern Territory; *id.*, Handb. Birds Austr., Vol. I., p. 242, 1865; *id.*, Birds New Guinea, pt. II. (Vol. II., pl. 32), Jan. 1st, 1876; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 322, 1879; Ramsay, Tab. List Austr. Birds, p. 6, 1888; Hall, Key Birds Austr., p. 17, 1899; North, Proc. Linn. Soc. N.S.W., Vol. XXVII., p. 72, 1902; *id.*, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 131, 1903; Le Souëf, Emu, Vol. III., p. 55, 1903 (N.T.); Mathews, Handl. Birds Austral., p. 65, 1908; Hill, Emu, Vol. X., p. 275, 1911 (N.W.A.); Macgillivray, *ib.*, Vol. XIII., p. 168, 1914 (N.Q.); McLennan, *ib.*, Vol. XVI., p. 232, 1917 (N.T.); Campbell, *ib.*, Vol. XVIII., p. 182, 1919.

Rhipidura intermedia North, Vict. Naturalist, Vol. XIX., p. 101, Nov. 6th, 1902: Bellenden Ker Range, Queensland; *id.*, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 130, 1903; Sclater, Bull. Brit. Orn. Club, Vol. XV., p. 8, 1904; Hartert, *ib.*, p. 10; Hall, Key Birds Austr., 2nd ed., p. 111, 1906; Mathews, Handl. Birds Austral., p. 65, 1908; Campbell and Barnard, Emu, Vol. XVII., p. 23, 1917 (N.Q.); Macgillivray, *ib.*, p. 197, 1918 (N.Q.).



H. Grönvold, del

Witherby & C^o

HOWEAVIS RUFIFRONS.
(RUFIOUS FANTAIL).

RUFIOUS FANTAIL.

Rhipidura mayi Ashby, Emu, Vol. XI., p. 41, July 1st, 1911: Anson Bay, Northern Territory.

Rhipidura (fulvifrons sic) mayi Ashby, *ib.*, p. 259, 1912.

Rhipidura rufifrons rufifrons Mathews, Nov. Zool., Vol. XVIII., p. 319, Jan. 31st, 1912.

Rhipidura rufifrons inexpectata Mathews, *ib.*: (Dandenong Ranges) Victoria; *id.*, Austral Av. Rec., Vol. I., p. 57, 1912.

Rhipidura rufifrons intermedia Mathews, *ib.*, p. 320.

Rhipidura rufifrons kempfi Mathews, *ib.*: Cape York, North Queensland.

Rhipidura rufifrons dryas, Mathews, *ib.*

Rhipidura rufifrons parryi Mathews, *ib.*: (Parry's Creek) North-west Australia.

Howeavis rufifrons rufifrons Mathews, List Birds Austr., p. 185, 1913.

Howeavis rufifrons inexpectata Mathews, *ib.*; Belcher, Birds Geelong, p. 239, 1914.

Howeavis rufifrons intermedia Mathews, List Birds Austr., p. 185, 1913.

Howeavis rufifrons kempfi Mathews, *ib.*

Howeavis rufifrons dryas Mathews, *ib.*

Howeavis rufifrons parryi Mathews, *ib.*, p. 186.

DISTRIBUTION. Eastern Australia, Cape York to Victoria and north and west as far as Napier Broome Bay, North-west Australia.

Adult male. Hinder part of crown, nape, mantle, and upper wing-coverts russet-brown, some of the last have rufous edgings like the outer edges of the flight-quills; primary-coverts and inner webs of primary and secondary quills blackish-brown paler and inclining to whitish on the inner edges of the latter; back, rump, upper tail-coverts and base of tail rufous; apical half of tail blackish with greyish-white tips to the feathers; fore-head, and feathers above the eye rufous; rictal bristles black; lores and cheeks black like the band across the lower throat; some of the feathers on the fore-neck are black, fringed with white; middle of breast, middle of abdomen, and vent white; sides of body ochreous; thighs and under tail-coverts buff; axillaries, under wing-coverts and inner margins of quills below whitish, remainder of the under-surface of quills hair-brown; lower aspect of tail blackish-brown with pale tips to the feathers. Bill black; eyes blood-red; feet brown. Total length 160 mm.; culmen 9, wing 76, tail 82, tarsus 19. Figured. Collected at Cable Station, Cape York, North Queensland, on the 25th of July, 1913.

Adult female. From the same locality, similar to the above.

Adult female. Hinder part of head, sides of face, hind-neck, sides of neck, upper back, and wings russet-brown; inner webs of flight-quills blackish-brown with pale inner edgings; lower back, rump, upper tail-coverts, and base of tail rufous-chestnut; apical portion of tail blackish with greyish-white tips to the feathers; fore-head and feathers above the eye rufous; chin and upper throat white extending in a line along the cheeks towards the sides of the neck; lower throat black; fore-neck also black with whitish margins to the feathers; middle of breast and middle of abdomen whitish; sides of the body, thighs, under tail-coverts, axillaries and under wing-coverts, and inner margins of quills below buff; remainder of quill-lining pale hair-brown; lower aspect of tail blackish with greyish tips to the feathers. Bill and eyes dark brown; feet light brown. Total length 152 mm.; culmen 8, wing 71, tail 77, tarsus 19. Figured. Collected at Selby, Victoria, on the 26th of December, 1911.

Adult male. From same locality, similar to the above.

THE BIRDS OF AUSTRALIA.

Adult female. Hinder crown, hind-neck, upper back, and upper wing-coverts mouse-brown, paler on the inner margins of the last; lower back, rump, upper tail-coverts and base of tail pale chestnut; tail greyish-brown, the middle feathers narrowly, and lateral ones broadly, tipped with white; fore-head chestnut; sides of face and a band across the throat black; rictal bristles black and directed forwards; throat and a line extending on to the sides of the neck white; some of the feathers on the fore-neck fringed with white, which imparts a scalloped appearance; middle of breast and middle of abdomen white; sides of body, flanks, thighs, and under tail-coverts pale buff; axillaries, under wing-coverts, and inner margins of quills below white; under-surface of flight-quills hair-brown; lower aspect of tail dark brown broadly tipped with white. Bill dark brown; eyes and feet brown. Total length 160 mm.; culmen 9, wing 68, tail 88, tarsus 18. Figured. Collected on Parry's Creek, North-west Australia, on the 1st of September, 1908.

Adult male. From same locality, similar to the above.

Adult. Fore-part of head and a line over the eye extending along the sides of the crown dull rufous; crown of head, hind-neck, and sides of neck dusky-brown; upper wing-coverts dusky-brown with lead-grey bases and rufous tips to the feathers; bastard-wing and primary-coverts uniform dark brown; flight-quills also dark brown fringed with rufous on the outer webs and very pale rufous on the inner ones; upper back rust-brown with lead-grey bases and rufous tips to the feathers becoming brighter and more uniform rufous on the lower back, rump and upper-tail coverts; base of tail also rufous, followed by a broad subterminal blackish band and russet-brown tips to the feathers; rictal bristles black; throat very pale rufous with whitish bases to the feathers followed by a more or less concealed blackish band on the fore-neck, many of the feathers that compose this band have whitish margins; breast, sides of body and under tail-coverts rufous, paler and inclining to white on the middle of the abdomen; axillaries and under-wing-coverts pale greyish-brown; under-surface of flight-quills hair-brown, very pale rufous on the inner edges; lower aspect of tail blackish, rufous at the base, and pale rust-brown at the tip. Collected at Inkerman, Queensland, in September 1907. The sexes are alike.

Adult female. Crown of head, sides of face, sides of neck, mantle, scapulars, and upper back rust-brown, the last tinged with rufous; base of fore-head and a line over the eye dull rufous; wings rust-brown, most of the coverts and some of the inner secondaries fringed with rufous; primary-coverts and primary-quills almost uniform hair-brown, slightly paler on the margins of the inner webs of the latter; lower back, rump and upper tail-coverts rufous; tail-feathers blackish brown slightly fringed with rufous on the outer webs at the base and broadly tipped with white; rictal bristles black; chin and throat white, slightly tinged with rufous, the white extending on to the sides of the neck at the back of the ear-coverts; a slightly indicated black band across the fore-neck, the feathers narrowly tipped with whitish; breast and sides of breast rufous-brown; abdomen, sides of body, thighs, and under tail-coverts rufous inclining to white on the middle of the abdomen; axillaries and under wing-coverts white, tinged with rufous on the outer margins of the wing; under-surface of flight-quills pale hair-brown with pale inner edges; lower aspect of tail blackish-brown with broad tips to the feathers. Collected on Melville Island, Northern Territory, on the 23rd of February, 1912.

Adult males. From the same locality are similar to the adult females.

Adult male. Crown of head, sides of face, hind-neck, sides of neck, and mantle russet-brown; base of fore-head and a line over the eye dull rufous; upper wing-coverts

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russet-brown, the median and greater series tipped with rufous which forms a double wing-bar; bastard-wing, primary-coverts, and flight-quills rather darker brown with rufous edgings to the outer webs and pale edges to the inner ones of the last; back, rump, upper tail-coverts and base of tail rufous with a broad blackish-brown subterminal band and pale tips to the last; rectal bristles black; chin and throat cream-white; a spotted band across the fore-neck composed of black feathers with cream-white margins; breast, abdomen, sides of body, thighs, and under tail-coverts, buffy-white strongly tinged with rufous; axillaries and under wing-coverts similar; under-surface of flight-quills hair-brown with paler inner margins; lower aspect of tail blackish-brown, rufous at the base, and pale at the tips. Collected on Gracemere, Queensland, on the 6th of April, 1882.

Nestling female. Crown of head and mantle dark russet-brown; lower back, rump, and upper tail-coverts rufous; tail, only partially developed, cinnamon; wings dark brown with rufous edgings to all the feathers; fore-neck russet-brown; breast and abdomen very pale dull rufous, somewhat brighter on the thighs and under tail-coverts; margin and under wing-coverts pale rufous. Collected at Selby, Victoria, on the 30th of December, 1913.

Nest. Somewhat like that of *R. flabellifera*, but coarser materials are used. Outside measurements $2\frac{1}{2}$ to $2\frac{3}{4}$ inches by 2 deep. Inside $1\frac{3}{4}$ by $1\frac{1}{2}$ deep.

Eggs. Clutch, two, three sometimes. Ground-colour stone or buff, with a zone round the larger end of lavender. 17-18 mm. by 12-13.

Breeding-season. November to January.

WATLING gave two figures of this species, the legend to one reading: "This bird is of very short flight and found among brush, rotten wood, and long grass"; to the other: "Native name Burril, November."

The latter was transcribed by Latham when he described from the drawing his Rufous-fronted Flycatcher, as follows: "Inhabits *New South Wales*, where it is known by the name of *Burril*; has hitherto only been met with in *November*."

Then Lewin figured it, without adding much more information; while Caley's remarks read: "This bird appears to me to be a rare one, at least I do not recollect having ever seen any other specimen than the present. I met with it on the 15th October, 1807, at Cardunny, a place about ten miles to the north-east of Paramatta. It is a thick brush (or underwood), and is the resort of the *great Bat*."

Gould quoted this, and added: "Had he (Caley) visited the dense brushes of Illawarra, the Liverpool range, and the Hunter, he would have found it in considerable numbers. Although many of its habits closely resemble those of *Rhipidura albiscapa*, they are, as the greater length of its legs would indicate, far more terrestrial. It runs over the ground and the fallen logs of trees with great facility. While thus engaged, and particularly when approached, it constantly spreads and displays its beautiful tail, and evinces a great degree of restlessness. It is always found in the most secluded parts of the forest, no portion of which appears to be too dense for its abode."

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Mr. J. W. Mellor has sent me the following : " I have noted this pretty Fantail throughout New South Wales and Queensland, notably in the former State at Tuggerah Lakes and the Ourimbah districts between Sydney and Newcastle. I have also seen it in the New South Wales National Park, south of Sydney, and on the Tweed River, Clarence and Richmond Rivers and at Mt. Lindsay in the Great Dividing Range between New South Wales and Queensland. In the latter State I noted it plentifully at Cooroy in the Blackall Ranges, while coming farther south I met it in the Dandenong Ranges in Victoria. It is an extremely restless little bird, and its large tail is constantly on the move from side to side, as if to frighten up the flies and moths by this action, and then the little bird flies after them with a quick, jerky flight, catching them as they fly away. As its food always consists of insects it is an extremely useful little bird in the forest and garden. It frequents the thickly timbered country, flitting in and out betwixt the trees and their foliage with the greatest ease."

Mr. A. G. Campbell has written me : "*Rhipidura rufifrons* reaches the secluded mountain gullies of Victoria about the end of October each year. It places its nest on some convenient twig about four feet from the ground and often near running water. In its migrations the species has been observed in the more open lowland forests and even in the gardens of the metropolis."

Mr. F. E. Howe also writes : " Is migratory, arriving in the district about the end of October. Unlike its cousin (*R. albiscapa*, which inhabits both densely scrubby and open country alike) it keeps to the dense scrubs only, generally where there is water. We have found many of their nests usually placed in a musk and overhanging the water, but have never seen more than two eggs to a clutch. I once found these Flycatchers nesting in company in a small musk tree, and both birds were sitting on eggs."

Mr. L. G. Chandler has sent me : " In the gullies of the Dandenong Ranges, Victoria, this species is very plentiful in the summer months. It is migratory, appearing in the Dandenongs about October and leaving about February. The months of November and December constitute the principal breeding period. The 9th of January, 1909, is the latest date I have taken the eggs. On the 1st Jan., 1909, I saw a pair of these Fantails feeding a young fan-tailed Cuckoo and a young one of their own species. Occasionally the young birds seem to resist the ejective habit of the Cuckoo, for I noticed a Satin Flycatcher with young under similar conditions."

Mr. C. F. Belcher writes : " Only at one time of the year do we see it actually in the town, namely, from March till May . . . They do not appear to stay with us all the winter, but retire to the forest sooner than most forest breeding species, late though their nesting time is."

Barnard wrote : "*Rhipidura rufifrons* was observed on my arrival at

RUFOUS FANTAIL.

Cape York migrating from New Guinea, and was seen frequently flying low over the waves, coming to the mainland. After resting for a few days they departed farther south. None seen after the end of October."

Macgillivray's notes read: "*Rhipidura dryas* (?) Wood-Fantail. First observed on the Gregory River at first camp, and thence all the way down. This bird occurs at Cape York in fair numbers, but does not breed, leaving by the end of November or beginning of December, to reappear in February, staying two months, and disappearing in April. This applies to the seasons 1911 and 1912. This species is more probably *R. rufifrons*, *R. dryas* not appearing east of the Gulf."

Later Macgillivray added: "Was occasionally met with in the scrub (at the Claudie River). A few were noted by Mr. McLennan along the Archer River. He notes: 'These birds do not seem to breed at Cape York,' giving data as above recorded."

As recorded above this species was named from a Sydney bird by Latham, and it is curious that this seems to be one of the more recent immigrants into Australia as it just reaches to Victoria, does not occur in South or South-west Australia nor in Tasmania, while related forms are more common in the islands to the north of Australia. Gould described the bird from "the north-western portion" of Australia as a distinct species, but, of course, he intended what we now call a subspecies. His differences were smaller size, more white tipping and less rufous base to tail-feathers, and the lack of the spotted markings on the chest. These were accepted as distinct species for many years, and then North described a *R. intermedia* from the Bellenden Ker Range, for which he gave almost the same diagnosis as Gould had done for his north-western species. Later Ashby redescribed Gould's *dryas*, depending upon Gould's statement that the spotted markings on the chest were lacking.

That only subspecies were indicated was certain and in 1912 I recognised six, introducing three as new, thus:

Rhipidura rufifrons inexpectata.

"Differs from *R. r. rufifrons* in its larger size and darker coloration throughout. (Dandenong Ranges) Victoria."

and *Rhipidura rufifrons kempi*.

"Differs from *R. r. intermedia* in its lighter coloured (light brown) ear-coverts, and smaller size. Cape York, North Queensland."

also *Rhipidura rufifrons parryi*.

"Differs from *R. r. rufifrons* in lacking the scale-like markings on the breast. (Parry's Creek) North-west Australia."

These subspecies were listed without alteration in my 1913 "List" and none have since been added.

THE BIRDS OF AUSTRALIA.

There are a number of extra-limital subspecies, but these all occur to the north of Australia, and it is difficult to determine the species and subspecies at present owing to the lack of material and the extent of the area. Recent workers on this fauna class New Guinea as comparable with a small rock as regards subspecific differentiation. The Australian subspecies are :

Howeavis rufifrons rufifrons (Latham).

New South Wales, South Queensland.

Howeavis rufifrons inexpectata (Mathews).

Victoria.

Howeavis rufifrons intermedia (North).

North Queensland (Bellenden Ker Range).

Howeavis rufifrons kempi (Mathews).

North Queensland (Cape York).

Howeavis rufifrons dryas (Gould).

Northern Territory.

Howeavis rufifrons parryi (Mathews).

North-west Australia.

GENUS—SETOSURA.

SETOSURA Mathews, Austral Av. Rec.,
Vol. II., pts. 2/3, p. 58, Oct. 23,
1913. Type (by original designation) *Rhipidura setosa melvillensis* Mathews.

My definition of this genus reads: "Differs from *Leucocirca* Swainson in its broader, longer bill, though the wing is much shorter and the legs and feet are much weaker, the metatarsus especially being much shorter."

This genus has proportionately the longest bill with restricted development of the feet, indicating a different line of evolution from the preceding and succeeding genera.

The bill is long and flattened, triangular, keeled with the tip strongly decurved, the rictal bristles are very long, profuse and strong; nostrils open, hidden by bristles and approached by frontal feathering.

The wing has the third, fourth, fifth and sixth primaries longest, the fourth and fifth generally exceeding the other two; the second is less than the seventh but exceeds the eighth.

The tail is long and rounded, the feathers still soft and broad.

The legs are short and weak, the tarsus distinctly scutellated in front in some cases, obscurely in others.

Order PASSERIFORMES.

No. 477.

Family MUSCICAPIDÆ.

SETOSURA SETOSA.

NORTHERN FANTAIL.

(PLATE 403.)

[MUSCIPETA SETOSA Quoy et Gaimard, Voy. de "l'Astrol.," Vol. I., p. 181, pl. 4, f. 4, (pref. June 29th) 1830 : New Ireland.]

Rhipidura isura Gould, Proc. Zool. Soc. (Lond.), 1840, p. 174, July 1841 : Port Essington, Northern Territory.

Rhipidura isura Gould, Proc. Zool. Soc. (Lond.), 1840, p. 174, 1841 ; *id.*, Birds Austr., pt. XXIX. (Vol. II., pl. 85), Dec. 1st, 1847 ; *id.*, Handb. Birds Austr., Vol. I., p. 242, 1865 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 131, 1903 ; Mathews, Handl. Birds Austral., p. 66, 1908 ; Hill, Emu, Vol. X., p. 275, 1911 (N.W.A.) ; *id.*, *ib.*, Vol. XII., p. 257, 1913 (N.T.) ; Macgillivray, *ib.*, Vol. XIII., p. 168, 1914 (N.Q.) ; McLennan, *ib.*, Vol. XVI., p. 222, 1917 (N.T.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 23, 1917 (N.Q.) ; Macgillivray, *ib.*, p. 198, 1918 (N.Q.) ; Campbell, *ib.*, Vol. XVIII., p. 183, 1919.

Rhipidura superciliosa Ramsay, Proc. Zool. Soc. (Lond.), 1874, p. 604, April 1st, 1875 : Rockingham Bay, Queensland.

Rhipidura setosa Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 329, 1879 ; Ramsay, Tab. List Austr. Birds, p. 6, 1888 ; Hall, Key Birds Austr., p. 17, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 114, 1901.

Rhipidura setosa isura Hartert, Nov. Zool., Vol. V., p. 525, 1898 ; *id.*, *ib.*, Vol. XII., p. 222, 1905 ; Mathews, *ib.*, Vol. XVIII., p. 320, 1912.

Rhipidura setosa superciliosa Mathews, *ib.*

Rhipidura setosa melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 41, April 2nd, 1912 : Melville Island, Northern Territory.

Rhipidura setosa tormenti Mathews, *ib.*, pt. 4, p. 90, Sept. 18th, 1912 : Point Torment, North-west Australia.

Setosura setosa isura Mathews, List Birds Austr., p. 186, 1913.

Setosura setosa tormenti Mathews, *ib.*

Setosura setosa superciliosa Mathews, *ib.*

Setosura setosa macgillivrayi Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 90, July 7th, 1916 : Leichhardt River, Queensland.



H. Grönvold, del.

Witherby & Co.

SETOSURA SETOSA.
(NORTHERN FANTAIL).

NORTHERN FANTAIL.

DISTRIBUTION. North Queensland (never at Cape York?) as far south as Rockingham Bay; Northern Territory and North-west Australia as far south as Point Torment.

Adult male. General colour of the upper-parts dark ash-grey including the head, back, and upper wing-coverts, somewhat browner on the last, the median and greater series of which are greyish-white, as are also the outer edges of the secondary-quills; bastard-wing, primary-coverts, and flight-quills hair-brown, paler on the inner edges of the last; long upper tail-coverts and tail-feathers blackish-brown with obsolete bars on the latter, the outer web and greater portion of the apical part white on the outermost feather on each side, on the next pair the white is confined to the tip; cheeks blackish; rictal bristles black and directed forward; a slight trace of a white supraloral streak which is extended to above the eye; chin, throat and fore-neck white; breast ash-grey with white shaft-lines to the feathers; abdomen, sides of body, under tail-coverts, axillaries, and under wing-coverts cream-white; long under tail-coverts and tips of two outer tail-feathers white like the outer web of the outermost feather on each side, remainder tail below dark brown; under-surface of flight-quills hair-brown with whitish inner edges. Bill and legs black; eyes brown. Total length 163 mm.; culmen 11, wing 79, tail 82, tarsus 16. Figured. Collected on the Leichhardt River, Queensland, on the 19th of June, 1910, and is the type of *S. s. macgillivrayi*.

Adult female. From the same locality, similar to the above.

Adult female. Crown of head, hind-neck, sides of neck, back, and scapulars, dark ash-grey; upper wing-coverts, bastard-wing, primary-coverts, and flight-quills hair-brown with greyish-white tips to the median and greater series like the outer edges of the secondaries; tail blackish-brown, the outermost feather on each side has the outer web and tip white, the next pair has the white confined to the tip, and the next feather, on one side only, has just a trace of white at the tip; fore-head and sides of face somewhat darker than the back; a white spot in front and above the eye; rictal bristles black, well developed, and directed forward; throat white; fore-neck and upper-breast ash-grey with white shaft-lines to the feathers, lower-breast, abdomen, and sides of body cream-white like the axillaries and under wing-coverts; under-surface of flight-quills hair-brown; under tail-coverts white; lower aspect of tail dark brown; the two outer feathers tipped with white, which extends along the outer web of the outermost feather. Total length 158 mm.; culmen 13, wing 80, tail 80, tarsus 16. Figured. Collected at Derby, North-west Australia, on the 8th of September, 1886.

Adult male. From the same locality similar.

Immature male. Crown of head and sides of face dusky-brown; back, scapulars, and upper wing-coverts dusky greyish-brown, the tips of the scapulars, upper tail-coverts and feathers of the lower back rust colour; bastard-wing, greater upper wing-coverts, primary-coverts and flight-quills dark hair-brown with buffy-white tips to the median and greater wing-coverts, primary-coverts, and outer edges and tips of primary-quills; tail blackish-brown, the outer feather on each side for the most part white, the dark pattern being restricted to the basal portion of the inner web, the next pair rather broadly tipped with white but chiefly on the inner web, the following pair have only a very small white wedge-shaped mark at the tips; rictal bristles black but not strongly developed; chin and throat white; breast grey with slight indications of whitish shaft-lines to the feathers; lower-breast and upper-abdomen cream-buff; lower-abdomen and under tail-coverts white; thighs dusky; axillaries grey; under wing-coverts cream colour; under-surface of flight-quills pale hair-brown slightly paler on the

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inner edges ; lower aspect of tail similar to its upper-surface. Collected on Melville Island, Northern Territory, on the 6th of January, 1912.

Immature male. Crown of head and sides of face dusky-brown ; back, wings and tail pale earth-brown ; bases to the feathers on the back lead-grey ; greater upper wing-coverts, in moult, blackish-brown tipped with white ; some of the primary-quills which are also moulting are uniform blackish-brown ; upper tail-coverts and tail dark hair-brown, the outer feather on each side is for the most part white with the dark pattern confined to the basal portion of the inner web, the next pair broadly tipped with white, but chiefly on the inner webs, the following pair have only a slight indication of white at the tips ; rictal bristles black and profusely developed ; chin and throat dull white ; breast greyish-brown with white shaft-lines to the feathers ; abdomen and lower flanks buffy-white becoming pure white on the under tail-coverts ; thighs dusky ; axillaries and under wing-coverts white with dark bases to the feathers ; under-surface of flight-quills pale hair-brown ; lower aspect of tail similar to that above, but rather paler. Collected on Melville Island on the 22nd of November, 1911.

Immature. Crown of head, sides of face, and back rust-brown, but much paler on the lower back and rump, some of the feathers on the upper back grey on the apical portions ; lesser and median upper wing-coverts greyish-brown, the latter tipped with white which forms a wing-bar ; outer edge of wing white ; bastard-wing, primary-coverts and greater upper wing-coverts hair-brown tipped with white which forms a second wing-bar ; flight-quills also hair-brown margined with white on the inner webs and fringed on the outer webs and tips of the secondaries ; upper tail-coverts and tail smoke-brown, the outer feather on each side white on the terminal third and the greater part of the outer web ; the next pair broadly tipped, and the following pair only slightly tipped with white on the outer webs ; rictal bristles black, numerous, and directed forward ; the feathers in front and above the eye tipped with white ; chin and throat white ; breast lead-grey with white shaft-lines ; abdomen isabelline-buff becoming white on the lower flanks and under tail-coverts ; thighs dusky-brown with white tips to the feathers ; axillaries and under wing-coverts grey tipped with white ; under-surface of flight-quills hair-brown paler on the inner edges ; lower aspect of tail similar to the upper side but slightly paler. Collected on Parry's Creek, North-west Australia, on the 26th of January, 1904.

Immature. Crown of head, nape, and sides of face soot-black, with a small white patch above and in front of the eye ; back and wings dark smoke-brown with rust colour tips and margins to the feathers ; primary-quills uniform hair-brown, secondaries similar but margined with rust colour ; tail blackish-brown, the outer feather on each side for the greater part white the dark pattern confined to the basal half of the inner web, the next pair tipped with white ; rictal bristles black and directed forwards but only slightly developed ; chin and throat white ; breast also white with dark bases to the feathers becoming darker on the sides of the breast ; abdomen and under tail-coverts buffy-white ; thighs buff ; marginal under wing-coverts pale buff ; under-surface of flight-quills hair-brown ; lower aspect of tail similar to its upper side. Collected on Melville Island on the 27th of October, 1911.

Nest. Cup-shaped, constructed of strips of melaleuca bark, entirely covered on the outside with spiders' web. The tail projects about 2 inches below the bottom of the nest. Inside measurements $1\frac{1}{2}$ inches by $\frac{3}{4}$. Outside $2\frac{1}{4}$ inches by $1\frac{1}{2}$.

Eggs. Clutch, two. Creamy-white, with a zone of a darker shade on the larger end. 17-18 mm. by 13-14.

Breeding-season. October to January.

NORTHERN FANTAIL.

GILBERT'S notes, as given by Gould, simply state : " It is abundant in all parts of the Cobourg Peninsula, and that it is to be met with in every variety of situation ; that it is usually seen in pairs, and that it secludes itself during the heat of the day amidst the dense thickets of mangroves."

Mr. J. P. Rogers wrote from Melville Island : " Nov. 15, 1911. Cooper's Camp. So far this is the only member of this genus seen on the island. They are numerous, and distributed both in the forest and in the mangroves, but do not seem to stay in the dense mangrove thickets, only on the outskirts. Jan. 14, 1912. 10 miles S.E. of Snake Bay, this species was not so numerous here as at Cooper's Camp, while on Feb. 4, 1912, they were still as numerous at the latter locality."

Macgillivray recorded : " Numerous on the Gregory River all the way down to Burketown, this fine, large Fantail does not occur at Cape York, and probably not on the eastern coast at all. During the two years that Mr. McLennan was at Cape York he saw no sign of it."

Later he wrote : " The Northern Fantail is a bird of the open forest, frequenting the smaller trees. Near the sandalwood landing on the Claudie, where there were small clumps of tea-tree in open forest, we came across several pairs, and an old nest was noted about 20 feet up in a small tree. It was a small cup-shaped structure, placed on a horizontal branch, and composed of fine bark and fibres bound together with spider webs. Mr. McLennan found a nest 5 feet from the ground in a small wattle in open forest on the 15th December ; it contained two slightly incubated eggs. On the Archer River Mr. McLennan found this species to be fairly plentiful."

G. F. Hill wrote of the birds of Kimberley, North-west Australia : " Although not numerous, this species was seen in all localities. No decided preference in the choice of nesting sites was noticed. Some nests were built in acacia scrub 3 or 4 feet from the ground, while others were found at a height of from 70 to 75 feet. From one to three eggs are laid. The nests closely resemble those of *R. albiscapa*."

Campbell and Barnard, dealing with Cardwell birds, concluded : " The Northern Fantail is found across the northern part of the continent. When the late Dr. E. P. Ramsay collected the Rockingham Bay bird he called it *superciliosa*. But in his subsequent ' Tabular List ' he dropped the name in favour of Gould's *isura*, because he found the birds ' are identical. ' In this we concur. We had many opportunities of observing this active and attractive little bird which, in habits and mode of nidification, much resembles the familiar White-shafted Fantail (*R. albiscapa*). Their ' tailed ' nest was usually placed on a naked twig in a low situation in open forest."

Later, when Campbell examined other specimens, he corrected this error.

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“ One ♂, 2 ♀♀ (from King River, Northern Territory). Slightly lighter coloured than North-western and McArthur River (N.T.) skins. Wing 83 mm. Since the article by H. G. Barnard and myself on the ‘ Birds of Rockingham Bay,’ an examination of a larger series indicates that the birds in that district are a darker race ; wing also larger—90 mm. It should be stated that Gould’s type locality for *R. isura* is ‘ North-west Coast ’ (*P.Z.S.*, 1840, p. 174), not ‘ Port Essington,’ as shown on Mathews’s ‘ List,’ p. 186.” It is displeasing to find such remarks after all the trouble taken by Witmer Stone to select the types in the Gould collection, and publish accurately the definite localities on the Gouldian specimens. It is well known that the “ North-west Coast ” of Gould covered all from Point Cloates to Port Essington, and only in later years did he discriminate between these points. In the present case he relates that Gilbert found it abundant in all parts of the Cobourg Peninsula, and though he mentions specimens were procured by Sir George Grey he does not give any definite locality, simply mentioning “ north coast.” It may be noted also that Gould’s “ north coast ” included Queensland, a good instance, which cannot be contradicted, being *Arses kaupi*, which has not yet been found elsewhere on the north coast.

Recently Hartert wrote : “ In 1903 I united certain *Rhipiduræ* from the northern South-east Islands under the name *Rhipidura setosa assimilis*. I am, however, now of the opinion that *assimilis*, *setosa*, *tenkatei*, *pallidiceps*, *buttikoferi*, *hoedti*, *bouruensis*, *obiensis*, *gularis*, *cinerea*, *vidua*, *kordensis*, *lenzi*, *niveiventris*, *isura* and *nigromentalis* are representative subspecies of *Rhipidura rufiventris* Vieill. 1818, which is the oldest name. . . . Moreover, what I called fifteen years ago *R. setosa assimilis* is not a uniform group, but is separable into three subspecies.” This necessitated a re-examination of the above-named forms as the species name of the Australian bird was called into question. I found another instance of Hartert’s confusion of representative species with subspecies, as no Australian ornithologist would recognise some of the birds above named as nearly allied to the well-known *isura*. While *kordensis* and many of the others show no near relationship, some, such as *assimilis* and *gularis*, are really only subspecies correctly speaking, and the oldest name is the one I have used, viz., *setosa*. As a matter of interest I would draw attention to *R. javanica* (Sparrman) as being also attachable to the medley proposed by Hartert, and would consider it impossible to define the above aggregate in terms which would not include that form. It may be possible that still more representatives could be recognised, but I do not think it would be to the benefit of ornithological systematics to degrade all such to the rank of subspecies, especially remembering the extraordinarily fine subspecific divisions made in Palæarctic forms. Thus a scarcely recognisable subspecies is now split into

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three, and at the same time perfectly obvious forms, separable in every detail, are lumped in, so that no description of the "species" is possible, unless it be in general terms which would not disqualify other accepted species.

When I received specimens from Melville Island I named them :

Rhipidura setosa melvillensis.

"Differs from typical *R. s. isura* (Derby) in being brown not blue-grey above. Melville Island."

Later Witmer Stone showed that Gould's *isura* were all from Port Essington, though the "North-west Coast" had been given in the original description; of course, Port Essington is on the north-west coast of Australia, so that our later restriction of the name simply misled ourselves, but did not indicate any mistake on Gould's part.

I then named the north-west form :

Rhipidura setosa (sa) tormenti.

"Differs from *R. s. isura* (from Port Essington) in being lighter above, and in having a longer bill and longer tail. Point Torment, North-west Australia."

Specimens were received which I named :

Setosura setosa macgillivrayi.

"Differs from *S. s. superciliosa* (Ramsay) in being lighter above, not so spotted on the chest; abdomen lighter buff, and in having a narrower bill. Leichhardt River, Queensland."

As an alternative name I now propose *Setosura setosa davidi* nom. nov. for preceding, as there is a prior *Rhipidura macgillivrayi* Sharpe, *Proc. Zool. Soc. (Lond.)*, 1881, p. 789, 1882.

The subspecies admitted in Australia are :

Setosura setosa isura (Gould).

Northern Territory.

Series are not yet available for the certain distinction of *melvillensis*.

Setosura setosa tormenti (Mathews).

North-west Australia.

Setosura setosa macgillivrayi (Mathews).

Western Queensland.

Setosura setosa superciliosa (Ramsay).

Queensland (Rockingham Bay district).

Extra-limital forms not accurately determined.

GENUS—LEUCOCIRCA.

LEUCOCIRCA Swainson, Naturalists' Library
(Jardine), Vol. X., Flycatchers, p. 126, pl.
XI., May 19, 1838. Type (by monotypy): *L. laticauda* = *Turdus*
leucophrys Latham.

Also spelt—

Leucocerca Strickland, Ann. Mag. Nat. Hist., Vol. XXII., p. 28, 1841.

Leucocircus Gray, Handl. Gen. Sp. Birds, Vol. I., p. 331, 1869.

Sauloprocta Cabanis, Mus. Hein., Vol. I., p. 57,
(after Oct. 23) 1851. Type (by monotypy): *Rhipidura motacilloides*
Vigors and Horsfield =
Turdus leucophrys Latham.

SWAINSON separated this genus from *Rhipidura* and there can be little hesitation in its recognition. While resembling that genus, the long bill, long legs and harsh feathering, especially of the tail, easily differentiate it.

The bill is long but is proportionately narrower than in the preceding series, the rictals are prominent but do not exceed the bill in length. The wing has similar formation but is proportionately longer while the tail is shorter. The tail is long, rounded, with broad stiffer feathers, not so soft and fan-shaped as in the former genera.

The legs are long, the feet small. The tarsus is obsoletely but obviously scutellated in front.



H. Grönvold, del.

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LEUCOCIRCA TRICOLOR.
(BLACK-AND-WHITE FANTAIL).

Order PASSERIFORMES.

No. 478.

Family MUSCICAPIDÆ.

LEUCOCIRCA LEUCOPHRYS.

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(PLATE 404.)*

Turdus leucophrys Latham, Suppl. Index Ornith., Vol. II., p. XLV., after May 30th, 1801: New South Wales.

Turdus leucophrys Latham, Suppl. Index Ornith., Vol. II., p. XLV., after May 30th, 1801: New South Wales.

White-browed Thrush, Latham, Gen. Synops. Birds, Suppl., Vol. II., p. 373, 1801.

Muscicapa tricolor Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXI., p. 490, May 30th, 1818: "Timor" error = New South Wales.

Rhipidura motacilloides Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 248, Feb. 17th, 1827: George River, New South Wales; Gould, Birds Austr., pt. XXXI. (Vol. II., pl. 86), June 1st, 1848; Macgillivray, Emu, Vol. XIII., p. 168, 1914 (N.Q.); McLennan, *ib.*, Vol. XVI., p. 223, 1917 (N.T.); Cleland, *ib.*, Vol. XVIII., p. 279, 1919 (N.S.W.).

Leucocirca laticauda Swainson, Nat. Libr., Flycatchers, p. 130, pl. XI., May 19th, 1838: no locality = New South Wales.

Rhipidura picata Gould, Introd. Birds Austr., 8vo ed., p. 40, Aug. 1st, 1848: Port Essington, Northern Territory; Campbell, Emu, Vol. XVIII., p. 183, 1919 (N.T.).

Sauloprocta motacilloides Cabanis, Mus. Hein., Vol. I., p. 57, 1851; Gould, Handb. Birds Austr., Vol. I., p. 244, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878; *id.*, Tab. List Austr. Birds, p. 6, 1888.

Sauloprocta picata Cabanis, Mus. Hein., Vol. I., p. 57, 1851; Gould, Handb. Birds Austr., Vol. I., p. 246, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878; *id.*, Tab. List Austr. Birds, p. 6, 1888.

Rhipidura tricolor Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 339, 1879; Hall, Key Birds Austr., p. 18, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 116, 1901; McIlwraith, Emu, Vol. I., p. 23, 1901; Milligan, *ib.*, Vol. II., p. 71, 1902 (W.A.); Le Souëf, *ib.*, p. 143, 1903 (N.T.); Ford, *ib.*, Vol. IV., p. 72, 1904 (Q.); Berney, *ib.*, Vol. V., p. 72, 1905 (N.Q.); Mathews, Handl. Birds Austral., p. 66, 1908; Whitlock, Emu, Vol. VIII., p. 180, 1909 (W.A.); *id.*, *ib.*, Vol. IX., p. 194, 1910 (W.A.); Hill, *ib.*, Vol. X., p. 276, 1911 (N.W.A.); *id.*, *ib.*, Vol. XII., p.

*The Plate is lettered *Leucocirca tricolor*.

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- 257, 1913 (N.T.); Jackson, *ib.*, Vol. XVIII., p. 169, 1919 (N.S.W.); Harvey, *ib.*, Vol. XIX., p. 37, 1919 (N.Q.).
- Sauloprocta melaleuca* North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 132, 1903; Hall, Emu, Vol. IX., p. 127, 1910 (S.A.). (Not of Quoy et Gaimard 1830.)
- Rhipidura tricolor motacilloides* Hartert, Nov. Zool., Vol. XII., p. 221, 1905; Mathews, *ib.*, Vol. XVIII., p. 321, 1912.
- Rhipidura tricolor picata* Mathews, *ib.*
- Rhipidura tricolor utingu* Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 90, Sept. 18th, 1912: Cape York, Queensland.
- Leucocirca tricolor* Mathews, List Birds Austr., p. 187, 1913; S. A. White, Trans. Roy. Soc. S. Austr., Vol. XXXVIII., p. 429, 1914.
- Leucocirca tricolor tricolor* Mathews, List Birds Austr., p. 187, 1913; Belcher, Birds Geelong, p. 241, 1914.
- Leucocirca tricolor utingu* Mathews, List Birds Austr., p. 187, 1913.
- Leucocirca tricolor picata* Mathews, *ib.*

DISTRIBUTION. Australia. Not Tasmania.

Adult male. General colour black, including the top of the head, sides of the face, hind-neck, back, scapulars, upper tail-coverts, and tail, upper wing-coverts, and innermost secondaries, throat, fore-neck, sides of breast, axillaries, under wing-coverts, thighs, and lower aspect of tail. The back, upper wing-coverts, and tail paler than the head and more sooty-black with obsolete cross-bars on the upper-surface of the last; primary-coverts, primary-quills, and outer secondaries hair-brown; a supraloral streak of white which extends over the eye on to the sides of the crown; lores and rictal bristles black; a dotted line of white along to fore-part of the cheeks; middle of breast, abdomen, sides of body and under tail-coverts white; under wing-coverts more or less speckled with white; under-surface of flight-quills hair-brown. Bill and feet black; eyes brown. Total length 189 mm.; culmen 12, wing 95, tail 95, tarsus 25. Figured. Collected Parry's Creek, North-west Australia, on the 26th of December, 1908.

Adult female. From the same locality, similar to the above.

Adult female. Crown of head, back, scapulars, upper wing-coverts, innermost secondaries, upper tail-coverts and tail glossy black with obsolete cross-bars on the last; bastard-wing and outer greater coverts dark smoke-brown; primary-coverts, primary-quills and secondaries dark hair-brown; a supraloral streak of white which widens out above the eye and on the sides of the crown; lores and rictal bristles black; some of the feathers on the cheeks and chin have indications of white tips; throat, sides of breast, axillaries, under wing-coverts, thighs, and under-surface of tail black; the marginal under wing-coverts tipped with white; fore-neck, breast, sides of body, abdomen and under tail-coverts white. Bill, eyes and feet black. Culmen 12 mm., wing 85, tail 89, tarsus 22. Figured. Collected at Cape York, North Queensland, on the 29th of September, 1912.

Adult male. From the same locality, similar to the above.

Immature male. Crown of head, sides of face, sides of neck, hind-neck, back, and upper tail-coverts bluish-black with rufous edgings to the feathers on the lower back and white, or smoky-white tips to the feathers on the nape; a white line above and in front of the eye which is continued along the sides of the crown; upper wing-coverts dark brown with rust colour tips to the feathers like the tips of the inner-

BLACK AND WHITE FANTAIL.

most secondaries; primary-coverts and flight-quills rather paler especially on the inner webs; tail black becoming paler on the outer feathers, all the feathers obscurely margined with a greenish shade; rictal bristles black and directed forwards; sides of breast soot-black with whitish tips to some of the feathers; middle of breast, abdomen, and sides of body white; thighs black with white tips to the feathers; under tail-coverts cream colour with a black subapical band to the long feathers; axillaries soot-black; under wing-coverts white with dark bases; under-surface of flight-quills pale brown; lower aspect of tail black becoming brown at the tip. Collected at Fulham, South Australia, in January 1912.

Immature. Crown of head, nape, sides of face, back, wings, scapulars, upper tail-coverts and tail black; a white patch above the eye which is continued along the sides of the crown and more or less concealed; the feathers on the nape and upper wing-coverts tipped with rust colour, becoming darker and inclining to deep chestnut on the back, upper tail-coverts, and tips of the innermost secondaries; flight-quills hair-brown on the inner webs; tail-feathers uniform black both above and below; rictal bristles black; throat, fore-neck, and sides of the breast black with whitish tips to the feathers; breast, abdomen, sides of body and under tail-coverts cream-white; thighs soot-black, the feathers tipped with white; axillaries and under wing-coverts black with white tips to some of the latter, the marginal coverts whitish; under-surface of flight-quills greyish-brown. Collected at Normanton, Queensland, on the 30th of January, 1914.

Immature. Crown of head, sides of face, upper back, innermost secondaries, and upper tail-coverts soot-black, the feathers narrowly fringed with ferruginous, more broadly on the lower back and upper tail-coverts, some of the feathers on the lower back silky-white; wings dark brown with buff or buffy-white tips to the coverts, inner webs of flight-quills hair-brown; tail black both above and below; a white supraloral streak which is continued over the eye and along the sides of the crown and joining on the nape where it becomes buffy-white; rictal bristles black; throat greyish-white with dusky bases to the feathers; sides of breast and axillaries black with whitish tips to the feathers; abdomen and sides of the body white; thighs and under tail-coverts isabelline; under wing-coverts white with dark bases to the feathers; under-surface of flight-quills pale brown. Collected at Normanton, Queensland, on the 13th of November, 1913.

Immature. Crown of head, nape, sides of face, back, and upper tail-coverts soot-black with obsolete rufous edgings to the feathers; a broad line of buffy-white along the sides of the crown; upper wing-coverts dark hair-brown margined with rust colour at the tips; innermost secondaries like the back, remainder of the flight-quills uniform hair-brown; tail uniform blackish-brown; rictal bristles scarcely perceptible; throat soot-black with greyish tips to some of the feathers like those on the sides of the breast, thighs, and marginal under wing-coverts; middle of breast white; abdomen and under tail-coverts cream colour; under-surface of flight-quills pale hair-brown; lower aspect of tail blackish-brown. Collected at Herbert Vale, Queensland, in November 1882.

Nest. Cup-shaped. Composed of strips of bark, held together by spider's web, especially on the top, and held in place on the branch by the same material. Outside measurements $2\frac{1}{2}$ to 3 inches by $1\frac{1}{2}$ to 2 deep. Inside $2\frac{1}{4}$ by $1\frac{1}{4}$ deep.

Eggs. Clutch, three to four. Ground-colour cream to yellowish-brown with a darker zone on the larger end. 18-20 mm. by 14-15.

Breeding-season. August to December or January.

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It has been puzzling to understand why such a common and familiar bird as this escaped the notice of the early settlers, and it is pleasing to recognise that the above Lathamian name applies to it.

The full description reads: "Length seven inches and a half; head, neck, back, wings, and tail black; a large patch of white on the lower coverts or secondary quills; the under-parts of the body from the breast white; over the eyes a long streak of white, like an eyebrow; thighs black, dotted with white; wings when closed reach half-way on the tail; bill and legs black.

Found at *Port Jackson*: described from a drawing made from a specimen brought from thence by Governor *King*; in appearance it most resembles the *Restless Thrush*, No. 11; but in this last, the white trace over the eye, and white patch on the wing, are both wanting."

In the British Museum there exists a series of drawings about which details will be published later, which shows the drawing apparently referred to above, but the white patch on the wing is only indicated. It is easily recognisable, and immediately enabled the recognition of the above name.

Consequently this name will displace the later *tricolor* of Vieillot and still later *motacilloides* Vigors and Horsfield, and also obviate any discussion of the merits of the former, as hereafter fully explained.

Vigors and Horsfield simply state: "This species was discovered by Mr. Brown at George River in September 1803," without any mention of its habits.

Gould added: "With the exception of Tasmania, this bird has been found in every part of Southern Australia yet visited by Europeans. At the same time that it is one of the most widely diffused, it is also one of the most tame and familiar of the Australian birds, and consequently a great favourite; it is constantly about the houses, gardens and stockyards of the settlers, often running along the backs and close to the noses of the cattle in order to secure the insects which are roused and attracted by the heat of their nostrils, along the roofs of the buildings, the tops of palings, gates, etc.; constructing its pretty nest beneath the verandah, and even entering the rooms to capture its insect prey. It passes much of its time on the ground, over which it runs and darts with the utmost celerity, and when skirting the stream with tail erect and shaking from side to side, it presents an appearance very similar to that of the Pied Wagtails; the movements of the tails of the two birds, however, are very different, that of the European being perpendicular, while that of the Australian is a kind of lateral swing. Its song, which consists of a few loud and shrill notes, is continually poured forth throughout the entire night, especially if it be moonlight. Its flight is at times gracefully undulating; at others, it consists of a series of sudden zigzag starts, but is always of very

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short duration ; it never poises itself in the air, like the *Seisura volitans*, and never mounts higher than the tops of the trees. . . . On an intruder approaching the nest, the birds fly about and hover over his head. . . . uttering all the time a peculiar cry which may be compared to the sound of a child's rattle, or the noise produced by the small cog-wheels of a steam-mill."

Mr. T. P. Austin has sent me the following note from Cobbora, New South Wales : "This very familiar bird, commonly known as the Wagtail, is extremely numerous everywhere in this district, and is a very popular species with almost everyone. Having a preference for taking up its quarters near dwellings, frequenting open forests, it is much more numerous in the vicinity of water, such as timbered banks of rivers and creeks, where it is a permanent resident, and is usually met with in pairs. It is of a very restless disposition, continuously spreading and swaying its tail from side to side. It has a beautiful clear note somewhat resembling the sound of the words 'sweet pretty little creature,' frequently uttered at all times of both day and night, especially on moonlight nights. It also has some other notes, which are more of a harsh, grating sound, but these are mostly heard when alarmed. It is constantly seen perched on the backs of horses, cattle and sheep, with partly spread wings, and tail and body ever swaying ; it will suddenly dart into the air or on to the ground, to capture some disturbed insect, only to probably return to the original perch. At times they place their nests in most extraordinary situations, but these are mostly found placed on some low branch overhanging water. They lay three or four eggs, and may be met with breeding from September till the end of the year, often rearing two or three broods in a season. One pair have been about my house to my knowledge for the last eight years, and when they choose a new nesting site they use it for two years, then go elsewhere, but always within a hundred yards of my house. For two years they nested on a grape-vine growing under my verandah, where they reared several broods, and when they had young to feed in this nest they would gather most of the food on the verandah, which food appeared to consist chiefly of flies."

Mr. C. F. Belcher says : "It is vocal throughout the year, and has two distinct sets of notes. One is that usually represented by the words 'sweet pretty creature.' . . . The other note is a harsh, grating sound, usually known as the alarm-note, though it is made use of by the bird quite ordinarily."

Of *R. tricolor* in North Queensland Berney has recorded : "Always with us, but prefers the lightly timbered country to the open downs. I cannot recognise any regular migratory movement among them, but we had during April and May 1904 a very large influx of 'Shepherds' Companions,' as they are universally called. My earliest note of eggs is 1st October, and the latest 23rd January. The clutch seems to be three eggs as often as four. I have

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known the same nest used for three birds in succession—a late brood one year and two the following season. Their ‘sweet pretty creature’ calls may often be heard during moonlight nights.”

Campbell and Barnard’s note from Cardwell reads: “This ubiquitous yet ever-pleasing bird was noted, but was not numerous. We are not prepared to say it differed from the Black and White Fantail in other parts.”

W. G. and R. C. Harvey, in their bird notes from Mackay, Queensland, published in 1919, write: “This happy little fellow was very plentiful here before the cyclone, and nested freely on the Sandringham Lagoon, always building in close proximity to the Pied Grallina (Magpie Lark). During the cyclone we rescued three, but all the rest perished. Our three lived happily together until the breeding season commenced, when the less attractive female got the order to ‘go bush,’ and she went, vowing vengeance. The remaining pair were soon busy at a nest in the mango-tree just above the verandah, and in due course had a neat little cup-shaped nest, containing three eggs. Both birds took turns at incubation, and all went well until the eggs were nearly hatched. Then something happened. The female was busy with incubation duties, the male was out foraging for insects, and while thus engaged he met the outcast female, who, after the manner of her sex, commenced a flirtation. The male bird became so engrossed in this new departure that he forgot all about his brooding mate, and we were beginning to fear that he would entirely desert her. The brooding bird, however, proved to be equal to the occasion. Leaving the nest, she at once proceeded to the spot from whence came the love-song of her erring mate. After thrashing her rival she succeeded in coaxing her mate back to the nest; but the outcast renewed her efforts on several occasions, and only the watchfulness and prompt action of the brooding bird prevented the male Fantail from committing bigamy.”

Cleland’s census of the birds of the Pilliga Scrub, New South Wales, records: “Met with almost throughout the journey, fifty being seen altogether, giving an estimated minimum population for the scrub of three thousand three hundred. It is interesting that the same numbers were seen on the outward and inward journeys, suggesting that this method of enumeration is fairly accurate.”

Jackson has recorded: “A few pairs of these happy little birds were always about our camp snapping up the small Barcoo flies. I was informed that the aborigines destroy these birds when they can, on account of a superstition that they are an evil medium responsible for carrying tales and making mischief among the gins.”

Captain S. A. White writing about birds from the interior of South Australia has also reported: “This familiar bird was met with at all stations and home-

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steads, also hundreds of miles from all habitations, in localities where it is very doubtful if white man, up to our visit, had ever trod, and here these birds were found to be as trustful and as quiet, if not more so, than when they are in constant association with man. These birds are much disliked by the natives, and the old people say that they hang about their wurlies and are for ever eavesdropping and carrying tales, telling other natives what they (the birds) hear. So that, when these birds are about, they speak of anything important only in a whisper."

Whitlock, writing of birds on the East Murchison, mid-West Australia, reported: "The Black and White Fantail is breeding in scattered pairs throughout the district. Several nests found, but only examined for Cuckoos' eggs. This was another early bird, and at Bore Well I was reminded at daybreak that 'I must please be strict'—in my general behaviour, I suppose."

Mr. Tom Carter has written me: "In your 'Reference List' of 1912 this species is *not* given as occurring in *South West Australia*. It was seldom seen about Point Cloates, but a few would make an appearance inland from there, in April—thus, April 23, 1893. First noted. April 16, 1902. First appearance noted. They are common, and resident throughout the south-west, with the exception of Albany, where, for some unknown reason, they are very seldom seen. I have spent many months at Albany at various visits, but have only seen about three Black and White Fantails during the whole time. Two were observed there in January 1914. In March 1910 I drove north from Albany through the Stirling Ranges to Pallinup River. The first Fantail (*tricolor*) was observed at that river, 50 miles north of Albany. The breeding season extends from June until December. Three eggs is the usual clutch, sometimes two only. The nests are usually placed in conspicuous places, as on a dead branch on the ground, or towards the end of a small limb on tree. Sept 21, 1910. A nest with three eggs was found built on top rail of a flood-gate (swing-hurdle) over a running creek at Wensleydale, Broome Hill. The first lot of young having flown, a second clutch of three eggs was seen in the same nest on November 5, 1910. Oct. 25, 1910. For three days a brood of fledged young (three) were fed by the parents, as they sat on the same branch of a tree, and apparently roosted there. Nests noted with eggs, June 5, 1913, Sept. 21, 1910, Oct. 21, 1910, Nov. 2, 1908, and Dec. 23, 1906. I watched a bird diving head first into waste of stock tank (getting flies?), sometimes only leaving terminal half of tail visible out of water (Wensleydale, April 13, 1906)."

G. F. Hill's notes from Kimberley, North-west Australia, read: "A resident species. All specimens secured were distinctly spotted on the throat and fore-neck, and in some cases on the wing-coverts, nape and lores.

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Measurements of birds in mm. :—

	Total length	Wing	Tarsus	Bill	Tail
♂	202	90	24.5	12	98
♀	201	86	24	—	—”

As usual with these interesting species there has been trouble with the names to be used; in this case, as in many others, the French explorer's specimens being described years before the birds collected at the same time or even earlier by English adventurous colonists, were attended to. As a rule, however, the English names came into use through access to specimens and ease of reference to the descriptions, and only lately have the earliest names been correctly allocated. Thus *Muscicapa tricolor* was named from Timor as collected by Maugé and was easily determined as referable to this group. Vigors and Horsfield described the bird from New South Wales as *Rhipidura motacilloides*, and this name was used by Gould, who separated the northern form as a distinct species under the name *R. picata*. For this species Cabanis proposed a new generic name, *Sauloprocta*, admitting the two species of Gould; and, suggesting *Leucocirca laticauda* was a synonym of the former, used the genus name *Leucocirca* for the species *javanica*. But Swainson proposed *Leucocirca* for the species *laticauda* only, and it is certainly synonymous with either *motacilloides* or *picata* if his drawing and measurements are correct, but cannot be determined until his specimen is traced. In the *Catalogue of the Birds in the British Museum* Vieillot's species name was utilised but no forms were recognised, both the Australian subspecies being lumped with the extra-limital races under the name *tricolor*. North would not follow this, and, using the genus name *Sauloprocta*, accepted the name given to the New Ireland form by Quoy and Gaimard, *melaleuca*, as the species name.

Hartert soon afterward introduced the combination *Rhipidura tricolor motacilloides*, writing: "I have examined a good series of Australian skins, and find that they all differ at a glance—one can even feel the difference in the dark, as for example, on a foggy November day in London—in having *very* much smaller bills, and also a little smaller size generally. It is strange that this striking difference has not been more emphasised. On the other hand, I cannot find any constant differences to separate a supposed western smaller race in Australia (*picata*)."

Ten years later Ogilvie-Grant, reporting on Dutch New Guinea birds, gave details of wing measurements without forming any conclusion as to the subspecies to be recognised. From his measurements it is obvious that such are available, thus: seven specimens from Port Essington measure in the wing 85-92 mm. and two from Victoria River, Northern Territory, 88 and 90 mm. Two from Port Curtis 92, 98, two from New South Wales 93 and 102,

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and two from Richmond River 95 and 96. This clearly indicates the eastern birds are larger than the Northern Territory ones. He recorded two from Cape York as 91-98, but there is doubt as to the localities. From West Australia he measured four males 102-104, one female 98, and two from South-west Australia, a male 101 and female 96.

I had separated the Cape York form as *R. t. utingu* as being less than the Northern Territory form, so that we now have four subspecies. Stresemann has examined the type specimen of *tricolor* in the Paris Museum and found it had the small bill of the Sydney form, all the extra-Australian forms agreeing in having large bills. The species name is *leucophrys*.

The names will be :

Leucocirca leucophrys leucophrys (Latham).

Eastern Australia from South Queensland
to South Australia.

Leucocirca leucophrys utingu (Mathews).

North Queensland.

Leucocirca leucophrys picata (Gould).

Northern Territory and North-west Australia.

Leucocirca leucophrys carteri subsp. nov.

South-west Australia.

The largest form, bill measurement 12 mm. : wing 106. Type Broome Hill, June 25th, 1906.

GENUS—MASTERSORNIS.

MASTERSORNIS Mathews, Austral Av. Rec., Vol. III.,
 pt. 4, p. 78, July 21, 1917. Type (by original
 designation) *Todus rubecula* Latham.
Myiagra Vigors and Horsfield, Trans. Linn. Soc.
 (Lond.), Vol. XV., p. 250, Feb. 17, 1827.
 Type (by subsequent designation Gray, p. 32,
 1840) *M. rubeculoides* =
Todus rubecula Latham.

Not—

Myiagrus Boie, Isis, 1826, heft x., col. 973, Oct. = *Myiagrus*. Cf. Wied Beitr. Naturg. Brasil, Bd. III.,
 p. 1045, 1831.

THE generic name I use was introduced by me to replace the familiar *Myiagra* which proved to be preoccupied.

Small “Muscicapine” birds with broad flattened bills, long rounded wings, long square tail, and small legs and feet.

The bill is comparatively long for the group, broad and flattened, the culmen keeled, the tip with a decurved hook; the nostrils circular placed at base of culmen, the numerous frontal bristles almost hiding them; the under mandible is very flattened and rictal bristles are numerous and well developed.

The wing is long and rounded with the first primary short, the second more than twice its length, the third to sixth forming the tip, the fourth sometimes the longest, the third subequal with the fifth and the sixth and seventh little less, the eighth being equal to the second.

The tail is long and square, about as long as the wing. The feet are small, the tarsus short and obscurely scutellate, the toes small and weak, the hind-toe and claw long.

The coloration of the sexes is different in the typical form, the male with a grey throat, and metallic sheen above, the female showing a pale red throat and little sheen on the upper-surface.



H. Grönvold, del.

W. Tierby & Co.

MYIAGRA RUBECULA.
(LEADEN FLYCATCHER).

MYIAGRA CONCINNA.
(BLUE FLYCATCHER).

MASTERSORNIS RUBECULA.

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(PLATE 405.)*

TODUS RUBECULA Latham, Index Ornith. Suppl., p. xxxii., after May 30th, 1801: New South Wales.

Todus rubecula Latham, Index Ornith. Suppl., p. xxxii., 1801.

Red-breasted Tody Latham, Gen. Synops. Birds Suppl., II., p. 147, 1801.

Myiagra rubeculoides Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 253, Feb. 17th, 1827: New South Wales.

Myiagra plumbea Vigors and Horsfield, *ib.*: New South Wales; Gould, Birds Austr., pt. xxiii. (Vol. II., pl. 89), June 1st, 1846; *id.*, Handb. Birds Austr., Vol. I., p. 252, 1865; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 51, 1876; Ramsay, *ib.*, Vol. II., p. 182, 1878; Campbell and Barnard, Emu, Vol. XVII., p. 24, 1917.

Myiagra rubecula Gray, Annals Mag. Nat. Hist., Vol. XI., p. 190, 1843; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 373, 1879; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 239, 1887; Ramsay, Tab. List Austr. Birds, p. 6, 1888; Hall, Key Birds Austr., p. 18, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 119, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 143, 1903; Mathews, Handl. Birds Austral., p. 66, 1908; Littler, Handb. Birds Tasm., p. 20, 1910; Hill, Emu, Vol. XII., p. 257, 1913 (N.T.).

Muscicapa leucogastra Blyth, Journ. As. Soc. Bengal, Vol. XIII., p. 386, 1844 (1845): "Probably Malayan" = New South Wales.

Muscicapa rubecula Blyth, *ib.*: No locality = New South Wales.

Myiagra concinna Gould, Birds Austr., pt. xxxi. (Vol. II., pl. 90), June 1st, 1848: Port Essington, Northern Territory; *id.*, Proc. Zool. Soc. (Lond.), 1847, p. 221, 1848; *id.*, Handb. Birds Austr., Vol. I., p. 254, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 374, 1879; Ramsay, Tab. List Austr. Birds, p. 6, 1888; Hall, Key Austr. Birds, p. 18, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 120, 1901; North, Austr. Mus. Spec. Cat. No. 1, p. 146, 1903; Mathews, Handl. Birds Austral., p. 66, 1908; Hill, Emu, Vol. X., p. 276, 1911 (N.W.A.); Barnard, *ib.*, Vol. XI., p. 25, 1911 (N.Q.); Hill, *ib.*, Vol. XII., p. 257, 1913 (N.T.); Macgillivray, *ib.*, Vol. XIII., p. 168, 1914

* The Plate is lettered *Myiagra rubecula* and *M. concinna*.

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- (N.Q.) ; McLennan, *ib.*, Vol. XVI., p. 223, 1917 (N.T.) ; Macgillivray, *ib.*, Vol. XVII., p. 198, 1918 (N.Q.) ; Campbell, *ib.*, Vol. XVIII., p. 183, 1919 (N.T.).
- Myiagra grisea* Pucheran, Voy. Pôle Sud, Zool., Vol. III., p. 78, 1853 : Port Essington, Northern Territory.
- Myiagra rubecula concinna* Hartert, Nov. Zool., Vol. XII., p. 222, 1905 ; Mathews, *ib.*, Vol. XVIII., p. 321, 1912 ; *id.*, List Birds Austr., p. 188, 1913.
- Myiagra rubecula yorki* Mathews, Nov. Zool., Vol. XVIII., p. 321, Jan. 31st, 1912 : Cape York, Queensland ; *id.*, List Birds Austr., p. 187, 1913.
- Myiagra rubecula ringwoodi* Mathews, Nov. Zool., Vol. XVIII., p. 321, Jan. 31st, 1912 : (Ringwood) Victoria ; *id.*, Austral Av. Rec., Vol. I., pt. 2, p. 57, 1912 ; *id.*, List Birds Austr., p. 187, 1913.
- Myiagra rubecula rubecula* Mathews, Nov. Zool., Vol. XVIII., p. 321, 1912 ; *id.*, List Birds Austr., p. 187, 1913 ; Rothschild and Hartert, Nov. Zool., Vol. XXV., p. 318, 1918.
- Myiagra rubecula melvillensis* Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 41, April 2nd, 1912 : Melville Island, Northern Territory.
- Myiagra rubecula broomei* Mathews, *ib.*, pt. 4, p. 90, Sept. 18th, 1912 : Napier Broome Bay, North-west Australia ; *id.*, List Birds Austr., p. 188, 1913.
- Mastersornis rubeculus* Mathews, Austral Av. Rec., Vol. III., p. 78, 1917.
- Mastersornis rubeculus rubeculus* Mathews, *ib.*
- Mastersornis rubeculus ringwoodi* Mathews, *ib.*
- Mastersornis rubeculus yorki* Mathews, *ib.*
- Mastersornis rubeculus concinnus* Mathews, *ib.*
- Mastersornis rubeculus broomei* Mathews, *ib.*
- Myiagra concinna concinna* Rothschild and Hartert, Nov. Zool., Vol. XXV., p. 318, 1918.
- Myiagra concinna yorki* Rothschild and Hartert, *ib.*

DISTRIBUTION. East Australia from Cape York to Victoria ; Northern Territory and North-west Australia.

Adult male. General colour of the upper-surface including the top of the head, back, wings, and tail slate-blue ; inner webs of bastard-wing blackish-brown like the inner webs of the flight-quills which have the inner margins white ; inner webs of tail-feathers blackish-brown with obsolete cross-bars ; lores and base of fore-head velvety-black ; rictal bristles black and directed forward ; hinder face, sides of neck, chin, throat, and fore-neck darker than the back and inclining to steel-blue ; breast, abdomen, sides of body, under tail-coverts, axillaries, under wing-coverts, and inner edges of quills below dull white ; under-surface of flight-quills and lower aspect of tail dark hair-brown ; thighs grey more or less intermixed with white. Bill dark slate-blue. Eyes dark brown ; feet black. Total length 138 mm. ; culmen 11, wing 75, tail 63, tarsus 16. Figured. (Upper fig.) Collected at Cape York, North Queensland, on the 9th of July, 1898, and is the type of *Myiagra rubecula yorki*.

Adult female. General colour of the upper-surface slate-blue including the top of the head, back, upper tail-coverts, scapulars, and lesser upper wing-coverts ; crown of head glossy and rather paler than the back ; median and greater upper wing-coverts and innermost secondaries dark brown somewhat paler on the outer edges of the feathers ; bastard-wing, primary-coverts and flight-quills blackish-brown, white on the inner margins of the last ; tail dark hair-brown more or less fringed with slate-blue towards

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the base and becoming paler on the outer edges, especially towards the tips, with obsolete cross-bars; the feathers in front and behind the eye somewhat darker than the top of the head: chin and throat pale cinnamon-rufous becoming deeper in colour and inclining to pale chestnut on the fore-neck and breast; abdomen and under tail-coverts dull white; thighs grey; axillaries, under wing-coverts, and inner edges of the quills below buffy-white; under-surface of flight-quills hair-brown; lower aspect of tail also hair-brown; with pale shafts to some of the feathers. Bill and feet black; eyes dusky. Total length 150 mm.; culmen 11, wing 81, tail 72, tarsus 16. Figured. (Middle fig.) Collected at Kiama, New South Wales, in October 1909.

Adult female. Crown of head, nape, and hind-neck, pale slate-blue; back, wings, and tail dark brown tinged with slate-blue more strongly on the back, and upper tail-coverts; outer edges of median and greater upper wing-coverts and some of the flight-quills greyish-white; inner margins of flight-quills dull white; tail-feathers dark brown with whitish edges at the tips and along the outer web of the outermost feather on each side; rectal bristles black, and directed forward; the short feathers round the eye whitish; hinder face darker than the top of the head and inclining to blackish; chin white; throat and breast cinnamon-rufous; abdomen, thighs, under tail-coverts, axillaries, under wing-coverts, and inner margins of the quills below dull white; under-surface of quills and lower aspect of tail hair-brown. Wing 73 mm. Figured. (Lower fig.) Collected at Derby, North-west Australia, on the 12th of September, 1886.

Immature. Rather like the adult female.

Nest. Cup-shaped. Composed of fine bark, held together with cobweb; with small pieces of bark and lichen on the outside. Lined with fine rootlets. Outside measurements $2\frac{1}{2}$ –3 inches by $1\frac{3}{8}$ deep. Inside $1\frac{1}{2}$ by $\frac{7}{8}$ deep.

Eggs. Clutch, three. White with a zone of brown and lavender blots round the larger end. 16–17 mm. by 14–15.

Breeding-season. October to January.

THE examination of the Watling paintings enabled Latham to describe this species which, on account of its broad bill, he allotted to the genus *Todus*. About the same time the French explorers collected a series of these broad-billed birds, and when Vieillot examined them he referred them to the genus *Platyrrhynchos*, and the present species he included, using the same specific name as Latham had introduced, viz., *rubecula*, a reference to the breast coloration.

Vigors and Horsfield did not recognise either of the preceding, but at once instituted a new genus for the Australian forms, and described three species, but the last has since been transferred and the other two prove to be synonymous.

Gould described as a distinct species a form from Port Essington, which will be discussed in detail later as regards its scientific aspect. Of the bird he called *Myiagra plumbea*, he wrote: "A summer visitant to New South Wales, where it takes up its abode on high trees bordering creeks and low valleys, and captures its insect food under the shady branches, the *Myiagra plumbea* is mostly seen in pairs, which are rather thinly dispersed over the

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districts forming its usual place of resort. A low whistling note, frequently uttered by the males, is, in all probability, indicative of the season of love. On the approach of winter it retires northwards, and returns again the following August or September. It is a most active bird; in fact, all its actions are characterised by great liveliness; for even while in a state of comparative repose, or when not actually in pursuit of insects, it displays a constant tremulous motion of the tail, by which means its presence is often betrayed when it would otherwise remain unnoticed."

Mr. T. P. Austin has written me from Cobbora, N.S.W.: "A very rare visitor to this district, but I have seen a few pairs during the spring and summer months, but always met with in the branches of the larger trees, and I have never seen it low down in the undergrowth. One's attention is usually drawn to it by its peculiar grating notes, which somewhat resemble certain species of frogs; they penetrate the forests for some considerable distance, and when uttered are always accompanied by a trembling motion of the tail, but it has this habit also without uttering a sound."

Mr. F. E. Howe has written me: "*Myiagra rubecula* makes its appearance at Ringwood in September or early in October, and in November the nest is generally found containing the clutch of three eggs. Both parents help in the task of making the nest, but we have only noticed the female sitting, though we have seen the male feeding her on the nest. This nest only contained one egg and the hen was evidently laying, but subsequently deserted the nest. Nests have been noticed placed as low as fifteen feet, but another was at an altitude of about forty feet. This and *Myiagra nitida* raise the tail quickly in an up-and-down motion."

Mr. Tom Tregellas has sent me a note, as follows, drawing attention to the similarity of calls between *Ptilotis leucotis* and this bird: "At Selby, on Dec. 23, 1911, and again on Feb. 9, 1912, in the Olinda locality, my two boys and I remarked the great similarity in the calls of these two birds. The White-eared Honey-eaters were high up in the tops of the gums catching insects, and the Flycatchers were in the same trees engaged in the same occupation. Again and again we were misled by the calls of the birds, and it was only by watching the oscillating tail (very distinctive of the bird) of the Flycatchers as they flitted from twig to twig that we were enabled to distinguish the one from the other. We thought the matter so important that we made a special study of it before committing it to paper, and satisfied ourselves beyond all doubt on this point. The calls were generally emitted by the Flycatchers when alighting after a short flight, and those of the Honey-eater when perched and on the look out for flies. It was the harsh, grating call of the Flycatcher that both birds used, and was repeated a great number of times during the day."

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Mr. Frank Littler states : " This migratory species is only seen in Tasmania during part of the year. Its distribution is by no means general throughout the island, nor is it a common object even in the districts frequented by it. Food consists entirely of insects which are captured on the trees and in the air. While perching it moves its tail about in a restless fashion, as though it were quite impossible to keep it quiet. Its notes are low and sweet."

Of his *Myiagra concinna* Gould wrote : " This species is a native of the north-western portion of Australia, where it inhabits the dense mangroves and thickets adjacent to swamps. It is very shy and retiring in its disposition, but may occasionally be seen on the topmost branches of the highest trees of the forest. Like the other Flycatchers, it has the habit of sitting for a long time on a branch, watching the various insects as they pass, now and then darting forth and capturing one on the wing, and then returning again to the branch from which it had flown. When among the low mangroves it utters a rather agreeable, twittering song ; but on high trees it emits a loud and shrill whistle, drawn out at times to a considerable length. The stomach is muscular, and the food consists of insects of various kinds and their larvæ."

Macgillivray has written : " Two specimens were secured on the Leichhardt River, where they were feeding about the tea-tree. They were not very plentiful. At Cape York this bird, which has been separated by Mr. Mathews as *M. yorki*, is a common species all the year round, breeding in the open forest, mostly on the bloodwoods, and also in the mangroves, in the summer months. Flushed *Dacelo leachi* from hollow in a bloodwood. A Blue Flycatcher had its nest in the same tree ; it contained the usual clutch of three eggs. The bird sat on the nest till I touched her."

Later he added : " The Blue Flycatcher was a very common bird, mostly found in open forest. They were nearly always feeding in the trees about our camp. They are on nearly all the islands off the coast. We noted them on Quoin Island, the Forbes Group, and the Sir Charles Hardy Islands. On our way out to the Raine Island opening in the Reef, and just before reaching the Ashmore Banks, one of these birds alighted on our boat for a few minutes, and then resumed its flight in the direction of the mainland ; it seemed to have come from the north-east. On Raine Island we also found one sheltering in the tower : on the morning of the 10th December a female, in the afternoon there were two females in the tower. On our return to camp on the Claudie these birds were seen to be very busy in the trees, especially after a fall of rain."

As already recorded this species was named by Latham, and Vigors and Horsfield gave two names to the typical form, but the chief interest is in the Gouldian name *concinna*. This form apparently was never diagnosed, as Gould simply repeated the description for *plumbea* as for *concinna*, with the

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variations "irides and feet black" for the former, and "irides brown; feet blackish-grey" for the latter.

Sharpe when dealing with the "Alert" Collections recorded that these were difficult to separate, even if separable. Hartert in 1905 wrote: "*Myiagra rubecula concinna* Gould (?) It seems that male specimens from N.W. Australia as well as those from Cape York, have always a blackish loreal line, while this is not pronounced in those from Queensland, N.S. Wales, Victoria, nor in those from the Louisiades. But this form is not easily, and perhaps not always, distinguishable; moreover, the females appear to be quite alike."

In the *Nov. Zool.*, Vol. XXV., p. 316, 1918, Rothschild and Hartert have discussed these forms and have concluded that there are two species, as follows: "*Myiagra rubecula* was described from New South Wales, *Myiagra concinna* Gould 1848 from Port Essington. As in each of these two localities only one form is found, we can apply these names with certainty. Mr. Mathews treats *concinna* as a subspecies of *rubecula*, but this view cannot be upheld, as at Cape York and a great part of (Northern) Queensland, *rubecula* and *concinna* occur, at various seasons, side by side. This is surprising, as the two species are so much alike. In fact, the only difference which we have found between the males is that the male of *M. rubecula* has the lores deep grey or slate colour, that of *concinna* has them velvety-black, and the lores are in the latter connected by a narrow black line across the fore-head, just above the bill, while this line is not conspicuously developed in *M. rubecula*. Moreover, the bill is generally wider in *rubecula*, narrower in *concinna*. There is apparently no difference at all between the females, except that there as well the bill is as a rule narrower in *concinna*, wider in *rubecula*; this difference in the bill is quite evident if good series of males and females (as far as they are certain, *i.e.*, coming from localities where only one of the forms occur) are compared, but it is variable and not easily measured. We agree with Mathews that *Platyrrhynchos ruficollis* Vieillot, *Myiagra rubiculoides* Vig. and Horsf., and *Myiagra plumbea* of the same authors, all from N.S. Wales, are synonyms of *rubecula*, and to these we must add *M. rubecula ringwoodi* Math., as the supposed difference, *i.e.*, "much greyer upper-surface" does not hold good. Mathews also described a *Myiagra rubecula yorki*, of which he thought that it was smaller, wing 75 mm. This he described erroneously, as some Cape York specimens are rather long winged, with a wing of fully 80 mm., while many, if not more than half the typical *rubecula* have wings no longer and sometimes even shorter than 75 mm. Moreover, the type of *M. yorki* is a black-lored *concinna*! It should, however, provisionally be kept separate, because it has the bill on the average wider than typical *concinna*, and, as a rule, about as wide as in *rubecula*. At Cape York occur also *M. rubecula* with slate-grey

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lores, which we are not able to separate from *rubecula* of New South Wales. The wings of the few males (two very worn ones and three in fresh plumage) measure 75 to at least 78 mm. *M. rubecula melvillensis* and *broomei* Math. are *concinna*, and, in our opinion, in no way separable. Then there is a form of *M. rubecula* from British New Guinea. This form we must separate as a new subspecies. The lores are grey, even lighter than in typical *rubecula*, in fact, not much darker than the crown, the upper side a shade paler, especially on the crown. Wings 71, 73, 74.5 mm. The female has the throat perhaps of a darker brown, the upper side rather pale, wings 71, 72, 73.8 mm. The *Myiagra* from Sudest and Rossel Islands have slate-coloured lores and frontal line (not black as in *concinna*!) and the males are exactly like the latter, except that the head, especially the throat, is generally somewhat darker, almost steel-blue. But the females have the jugular region rather darker, browner, the chin in contrast, as a rule, more whitish, sometimes quite white. This latter character varies in *rubecula*, but the chin is almost always less whitish, sometimes quite as brownish as the jugulum. We, therefore, recognise at present of this group of *Myiagra*:

Myiagra rubecula rubecula (Lath.).

Victoria, N.S.Wales and Queensland as far
north as Cape York.

Myiagra rubecula papuana R. & H.

South-eastern New Guinea.

Myiagra rubecula sciurorum R. & H.

Rossel and Sudest, and probably St. Aignan,
Louisiade group.

Myiagra concinna concinna Gould.

Northern Territory and N.W. Australia.

Myiagra concinna yorki Math.

Northern Queensland, from Cape York to at
least as far north as Mackay."

I have quoted this extract as an example of splitting and criticism by extra-limital workers. Had I ventured to suggest two species, I would probably have received even severer criticism than in the above. I also cannot understand splitters who cannot see the "much greyer upper-surface" separating birds because they are "perhaps" of a darker brown and "a shade paler." In the preceding account there are the usual oversights; as I have just pointed out Gould never distinguished *concinna* in writing, and *Platyrhynchus ruficollis* Vieillot is not referable to this species, as was pointed out by Salvadori forty years ago; and as Rothschild and Hartert are specialists in the literature of New Guinea birds this should have been known to them.

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I have carefully studied these birds in view of Rothschild and Hartert's conclusions and cannot recognise two species. Admitted that the north-western forms are separable subspecifically, a value I accepted following Hartert's decision that they were only doubtfully separable even with that rank, I consider the Queensland birds intermediate, and as Rothschild and Hartert admit, the females at this locality are inseparable and the males only by the lore coloration which I find very variable and not specific, as the same bird will show dark or pale lores according to the incidence of light. A series of dark-lored birds held at an angle in the sunlight become pale-lored. Again, it is possible the coloration varies according to age and sex, and in this connection I was interested in the examination of a series of the Red-throated Thickhead. In this species also the lores are black, but specimens also show grey lores. It appears to be a seasonal change and certainly does not distinguish a different species, and the same thing can be observed in connection with the forms of *Lewinornis* as already indicated under that genus. In these the differences are much more marked and noticeable than in the present case, where they can scarcely be distinguished. I cannot, therefore, follow Rothschild and Hartert's conclusions, but must maintain the values accepted in my "List."

Mastersornis rubecula rubecula (Latham).

New South Wales; South Queensland.

Mastersornis rubecula ringwoodi (Mathews).

Victoria.

Mastersornis rubecula yorki (Mathews).

North Queensland.

Mastersornis rubecula concinna (Gould).

Northern Territory.

Mastersornis rubecula broomei (Mathews).

North-west Australia.

Mastersornis rubecula papuanus (Rothschild and Hartert).

South-eastern New Guinea.

Mastersornis rubecula sciurorum (Rothschild and Hartert).

Louisiade Islands.



H. Grönvold, del.

Witherby & Co

MYIAGRA CYANOLEUCA.
(SATIN FLY-CATCHER).

MYIAGRA RUFICOLLIS.
(BROAD-BILLED FLY-CATCHER).

MASTERSORNIS CYANOLEUCUS.

SATIN FLYCATCHER.

(PLATE 406.)*

PLATYRHYNCHOS CYANOLEUCUS Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXVII., p. 11, Dec. 26th, 1818: "Timor" errore = New South Wales.

Platyrrhynchos cyanoleucus Vieillot, Nouv. Dict. d'Hist. Nat., Vol. XXVII., p. 11, 1818.

Myiagra nitida Gould, Synops. Birds Austr., pt. iv., App., p. 1, April 1838: New South Wales; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 142, Dec. 1838; *id.*, Birds Austr., pt. xxxi. (Vol. II., pl. 91), June 1st, 1848; *id.*, Handb. Birds Austr., Vol. I., p. 255, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 375, 1879; Ramsay, Tab. List Austr. Birds, p. 6, 1888; Hall, Key Birds Austr., p. 18, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 121, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 146, 1903; A. G. Campbell, Emu, Vol. IV., p. 119, 1905 (Tas.); McClymont, *ib.*, Vol. V., p. 161, 1906 (Tas.); Mathews, Handl. Birds Austral., p. 66, 1908; Littler, Handb. Birds Tasm., p. 21, 1910; Barnard, Emu, Vol. XI., p. 25, 1911.

Myiagra rubecula (errore) Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878.

Myiagra nitida nitida Mathews, Nov. Zool., Vol. XVIII., p. 322, 1912; *id.*, List Birds Austr., p. 188, 1913; Belcher, Birds Geelong, p. 242, 1914.

Myiagra nitida robinsoni Mathews, Nov. Zool., Vol. XVIII., p. 322, Jan. 31st, 1912: Cooktown, North Queensland; *id.*, List Birds Austr., p. 188, 1913.

Myiagra cyanoleuca Mathews, Austral Av. Rec., Vol. II., pt. 5, pp. 95-6, 1914.

Myiagra cyanoleuca cyanoleuca Mathews, *ib.*, p. 97.

Myiagra cyanoleuca robinsoni Mathews, *ib.*

Mastersornis cyanoleucus Mathews, Austral Av. Rec., Vol. III., p. 78, 1917.

Mastersornis cyanoleucus cyanoleucus Mathews, *ib.*

Mastersornis cyanoleucus robinsoni Mathews, *ib.*

DISTRIBUTION. Eastern Australia, from North Queensland to Victoria, and Tasmania.

Adult male. General colour glossy blue-black with steel-blue reflections including the head, back, wings, tail, sides of face, throat, and upper-breast; inner webs of flight-quills dull black margined with white on the inner edges; tail rather duller than the back, with obsolete cross-bars; lores and base of fore-head velvety-black; abdomen, under tail-coverts, axillaries, under wing-coverts, and inner margins of quills below dull white, the bases of the under wing-coverts black which show

* The Plate is lettered *Myiagra cyanoleuca*.

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through the white and give a barred appearance ; thighs dark grey ; under-surface of flight-quills and lower aspect of tail blackish-brown. Bill leaden-black, eyes brown, feet leaden-blue. Total length 152 mm. ; culmen 13, wing 86, tail 75, tarsus 15. Figured. Collected on the Barron River, North Queensland, on the 25th of March, 1912.

Adult female. Crown of head and nape dark glossy steel-green ; back, upper tail-coverts, and scapulars slate-blue ; wings blackish-brown with pale margins to some of the feathers, inner edges of flight-quills white ; tail blackish, paler on the lateral feathers and smoke-brown on the outermost which are whitish along the outer webs ; sides of face dull black ; the short feathers round the eye whitish ; throat, fore-neck, sides of neck, and sides of breast cinnamon-rufous ; middle of breast, abdomen, sides of body, thighs and under tail-coverts white ; axillaries, and under wing-coverts tinged with pale buff ; under-surface of flight-quills dark hair-brown with white inner margins ; lower aspect of tail also dark hair-brown with white shafts to the lateral feathers and white along the outer web of the outermost feathers. Bill and feet black, eyes dusky. Total length 164 mm. ; culmen 12, wing 88, tail 80, tarsus 16. Figured. Collected at Cairns, North Queensland, in October 1911.

Immature. Rather like the adult female.

Nest. Cup-shaped. Composed of strips of bark, held together with cobweb and decorated on the outside with lichen. Outside measurements 3-3½ inches by 2. Inside 2 by 1.

Eggs. Clutch, two or three. White, with a zone of umber and lavender round the larger end. 20 mm. by 17.

Breeding-season. November to January.

GOULD wrote : "The *Myiagra nitida* appears in Tasmania about the end of September, commences breeding soon after its arrival, rears a somewhat numerous progeny during the months of summer, and departs again in February. In performing these migrations it necessarily passes directly over the colonies of South Australia and New South Wales, yet it seldom occurs in collections from those countries. It is a most lively, showy, and active bird, darting about from branch to branch and sallying forth in the air in pursuit of its insect prey with a singular quick, oscillating or trembling motion of the tail."

Mr. A. G. Campbell has written me : "This species is found chiefly about the mountains of the centre and eastern Victoria and in the Grampians. It is a migratory species. The female is distinguished from that of *M. rubecula* by having the crown of the head a shining metallic colour. The species in Tasmania is slightly smaller, and is without the narrow white edgings on both outer and inner webs of the two outermost tail-feathers, and also to outer webs of secondary wing-feathers which are noticeable on the mainland bird. If the species is truly migratory, leaving Tasmania in winter, why is there this difference ?"

Mr. Frank Littler has sent me : "This species is to be found between September and February only in Tasmania. The habits of this species closely resemble those of its congeners. Like them it displays great activity in pursuing

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and capturing flies and other insects. Its notes are somewhat louder than those of the Leaden Flycatcher."

Mr. Tom Tregellas writes: "A peculiarity in regard to the habits of this bird is its preference for living at a great height, and nearly always in the very tallest white gums. Both at Olinda and Selby I have always seen them at a great height, rarely descending to the tops of saplings for food, and enjoying the company of the Spotted Pardalotes and Mistletoe Birds. I can thus invariably find these birds in the same locality in the same trees. Why they frequent these trees is unknown to me, but it is probably a question of food supply, and as all their food is taken on the wing it may be that it is more abundant between the tree tops."

This bird was described by Gould and his name has been accepted until recently when I revived for it the name given by Vieillot twenty years before Gould named it.

As regards the distribution of this species we find a peculiar complication. Most abundant in Victoria and Tasmania I separated the birds I received from Cooktown on account of their duller coloration. As long ago as 1898 Hartert described from Sudest Island, Louisiade Archipelago, a new species as *Myiagra nupta* concluding: "There is no very close ally."

In the *Nov. Zool.*, XXV., p. 316, 1918, Rothschild and Hartert include *Myiagra cyanoleuca* Vieillot from the Louisiade Group, recording *Myiagra nupta* Hartert as an absolute synonym, and explaining: "It is not often that we find the same forms of purely Australian small Passerine birds in Australia and the Louisiades, while they are absent from New Guinea. This, however, is one of those cases, though possibly *M. cyanoleuca* may yet be discovered in New Guinea, as it is also found on Woodlark Island and the D'Entrecasteaux Group (Fergusson Island). Specimens from Sudest Island are indistinguishable from Australian ones."

Under these circumstances it seems best to retain the two names given to Australian forms so that further research may be undertaken. If they were suppressed, the fact of this erratic distribution might be lost sight of, whereas it should be emphasised. Therefore I would record:

Mastersornis cyanoleucus cyanoleucus (Vieillot).

Tasmania, Victoria, and New South Wales.

Mastersornis cyanoleucus robinsoni (Mathews).

North Queensland.

Mastersornis cyanoleucus nuptus (Hartert).

Louisiane Group.

Described as a distinct species, but now sunk by the author as an absolute synonym of typical race, though discontinuous distribution quite peculiar.

Order PASSERIFORMES.

No. 481.

Family MUSCICAPIDÆ.

MASTERSORNIS RUFICOLLIS.

BROAD-BILLED FLYCATCHER.

(PLATE 406.)*

[PLATYRHYNCHOS RUFICOLLIS Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXVII., p. 13, Dec. 26th, 1818 : "Nouvelle Hollande" errore = Timor.

Synonym : *Myiagra latirostris* Swainson, Naturalists' Library (Jardine), Vol. X., Flycatchers, pp. 208 and 255, May 19th, 1838. Loc. unknown ; in Mus. Paris. = Timor. Extra-limital.]

Myiagra latirostris Gould, Proc. Zool. Soc. (Lond.), 1840, p. 172, July 1841 : Port Essington, Northern Territory [not *M. latirostris* Swainson 1838, as above]; *id.*, Birds Austr., pt. XXXII. (Vol. II., pl. 92), Sept. 1st, 1848; *id.*, Handb. Birds Austr., Vol. I., p. 256, 1865; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 51, 1876; Ramsay, *ib.*, Vol. II., p. 182, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 381, 1879; Ramsay, Tab. List Austr. Birds, p. 6, 1888; Hall, Key Birds Austr., p. 18, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 122, 1901; Mathews, Handl. Birds Austral., p. 66, 1908; Hill, Emu, Vol. X., p. 276, 1911 (N.W.A.); Barnard, *ib.*, Vol. XI., p. 26, 1911 (N.Q.); Hill, Vol. XII., p. 257, 1913 (N.T.); Macgillivray, *ib.*, Vol. XIII., p. 168, 1914 (N.Q.); McLennan, *ib.*, Vol. XVI., p. 223, 1917 (N.T.); Macgillivray, *ib.*, Vol. XVII., p. 198, 1918 (N.Q.).

Myiagra latirostris latirostris Mathews, Nov. Zool., Vol. XVIII., p. 322, 1912; *id.*, List Birds Austr., p. 188, 1913.

Myiagra latirostris kempi Mathews, Nov. Zool., Vol. XVIII., p. 322, Jan. 31st, 1912 : Cape York, North Queensland; *id.*, List Birds Austr., p. 188, 1913.

Myiagra latirostris cooperi Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 42, April 2nd, 1912 : Melville Island, Northern Territory; *id.*, List Birds Austr., p. 188, 1913.

Myiagra latirostris tormenti Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 91, Sept. 18th, 1912 : Point Torment, North-west Australia; *id.*, List Birds Austr., p. 188, 1913.

Myiagra ruficollis Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 96, Sept. 24th, 1914.

Myiagra ruficollis cooperi Mathews, *ib.*

Myiagra ruficollis tormenti Mathews, *ib.*

Mastersornis ruficollis Mathews, *ib.*, Vol. III., p. 78, 1917.

Mastersornis ruficollis cooperi Mathews, *ib.*

* The Plate is lettered *Myiagra ruficollis*.

BROAD-BILLED FLYCATCHER.

Mastersornis ruficollis tormenti Mathews, *ib.*

Mastersornis ruficollis kempi Mathews, *ib.*

DISTRIBUTION. Tropical Northern Australia.

Adult male. General colour of the upper-surface, including the crown of the head, sides of face, back, wings and tail, slate-blue darker and more glossy on top of the head; outer edges of the innermost secondaries inclining to whitish; inner webs of flight-quills blackish-brown with white inner margins; tail-feathers blackish-brown fringed with slate-blue, the outermost feathers much paler and margined along the outer web with white extending round the tip on to the apical portion of the inner web, the white confined to the tips of the next inward pair; eye-ring whitish, rectal bristles black and directed forward; chin and throat cinnamon-rufous, becoming darker and inclining to pale chestnut on the breast; abdomen, sides of body, under tail-coverts, axillaries, and under wing-coverts white; thighs grey; under-surface of flight-quills hair-brown margined with white on the basal portion; lower aspect of tail blackish-brown with white shafts and white margins to some of the lateral feathers. Bill, tomium of lower and upper mandible black, remainder of lower and base of upper leaden-blue. Eyes brown; feet and legs dark leaden-blue. Total length 151 mm.; culmen 11, wing 71, tail 70, tarsus 18. Figured. Collected at Point Torment, North-west Australia, on the 21st of March, 1911.

Adult female. Similar to the above.

Immature. Rather like the adult.

Nest. Cup-shaped. Composed of strips of bark, held together with a thick coating of spider's web and decorated with lichen on the outside. Outside measurements 2 inches by 2 deep. Inside $1\frac{3}{4}$ by $1\frac{1}{4}$.

Eggs. Clutch, two. Whitish, with a zone of brownish and lavender spots round the larger end. 18 mm. by 14.

Breeding-season. January and February.

MACGILLIVRAY has recorded: "Found always in the mangroves at Cape York, where they find an abundance of insect life amongst the leaves. They usually place their nest on a dead twig about two feet above high-water mark over a channel in the mangroves. When building, one of the birds was always near the nest. The male would sit in some chosen position, calling all the time the female was away gathering material. When she returned he would flit away on the same quest." Later, from the Claudie River district, he added: "The Broad-billed Flycatcher keeps near the shore, and is always found in or near the mangroves. Several pairs were noted on Haggerstone Island. Mr. McLennan states that it is always found in the mangroves, finding its living amongst the leaves. Mr. McLennan noted this species in the Archer River mangroves."

Mr. J. P. Rogers wrote me: "These birds are not numerous at Derby, and are seldom seen away from the mangroves. Twice I saw them on the Lower Fitzroy River, but this was unusual. On Melville Island I only saw a few, but sometimes heard them calling in the dense mangroves."

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Gould described a Broad-billed Flycatcher from the "North Coast" under the name *latirostris*, but a few years later Pucheran pointed out that this species had been previously named by Vieillot and, of course, the accurate Salvadori at once took note of this and made the necessary correction. However, in the authoritative *Catalogue of the Birds in the British Museum* the incorrect name was continued, and even workers on New Guinea birds, who have prided themselves on their good work, ignored Salvadori's action, and thus we find Ogilvie-Grant writing *Myiagra latirostris mimikæ*. Quite independently, endeavouring to make correct the nomenclature of Australian birds, I noted Pucheran's record and found that Gould had been anticipated by Swainson even in the choice of his specific name, so that Gould's name could not even be retained in a subspecific sense.

Consequently the nomination of the forms will be :

*Mastersornis ruficollis kemp*i (Mathews).

Cape York, North Queensland.

Mastersornis ruficollis cooperi (Mathews).

Melville Island, Northern Territory.

Darker coloration above and with a broader bill.

Mastersornis ruficollis tormenti (Mathews).

North-west Australia.

Lighter coloration above and bill narrower.

Mastersornis ruficollis mimikæ (Ogilvie-Grant).

Dutch South-west New Guinea.

Larger than *Mastersornis ruficollis cooperi* with throat darker. Aru Islands birds were accepted by Ogilvie-Grant as identical.

Mastersornis ruficollis ruficollis (Vieillot).

Timor.

It may be noted that this species differs from the typical forms of *Mastersornis* in its broader bill and retention of similar coloration in both sexes, whereas the sexes show different coloration in the former genus. There is a series of birds showing variation in coloration and structure to which the name should be restricted, and the species with unlike coloration should be absolutely separated.

GENUS—MACHÆRIRHYNCHUS.

MACHÆRIRHYNCHUS Gould, Birds Austr. Suppl., pl. 11,

March 15, 1851. Type (by monotypy) *M. flaviventer* Gould.

Also spelt—

Macheirhynchus Schlegel, Ned. Tijds. Dierk., Vol. IV., p. 43, 1873.

Macheirhamphus Schlegel, *ib.*, p. 58.

Machærorhynchus Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 390, 1879.

VERY small "Muscicapine" birds with very broad flat bills, medium wings, long wedge tail and small legs and feet. Coloration peculiar. The bill is very broad and flat with a prominent keel ending in a strongly hooked tip. The sides of the culmen very flattened, the nostrils reduced to linear slits in front of the feathering, though a couple of nasal bristles are there seen erect. The under mandible is also very flat and four strong rictal bristles are present. The wing is rounded and shorter than the tail. The third, fourth, fifth and sixth primaries are longest and equal, the seventh equal to the second and the first more than half the length of the latter.

The tail is long and wedge-shaped, the middle six feathers about equal in length, the outside ones about half their length. The legs and feet are small and weak.

The coloration is very different from any other species placed near, viz., black, green and yellow, which suggests that these aberrant little birds are not correctly located here.

MACHÆRIRHYNCHUS FLAVIVENTER.

YELLOW-BREASTED WHERRYBILL.

(PLATE 407.)

MACHÆRIRHYNCHUS FLAVIVENTER Gould, Birds Austr. Suppl., pl. 11, pt. 1., March 15th, 1851 : Cape York, Queensland.

Machærirhynchus flaviventer Gould, Birds Austr. Suppl., pl. 11, pt. 1., 1851 ; *id.*, Handb. Birds Austr., Vol. I., p. 257, 1865 ; Ramsay, Proc. Zool. Soc. (Lond.), 1868, p. 384 ; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 51, 1876 ; Ramsay, *ib.*, Vol. II., p. 182, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 390, 1879 ; Ramsay, Tab. List Austr. Birds, p. 6, 1888 ; Le Souëf, Ibis, 1897, p. 398 ; Hall, Key Birds Austr., p. 18, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 123, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 147, 1903 ; Mathews, Handl. Birds Austral., p. 66, 1908 ; Barnard, Emu, Vol. XI., p. 26, 1911 (N.Q.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 24, 1917 (N.Q.) ; Macgillivray, *ib.*, p. 198, 1918 (N.Q.).

Machærirhynchus flaviventer flaviventer Mathews, Nov. Zool., Vol. XVIII., p. 322, 1912 ; *id.*, List Birds Austr., p. 189, 1913.

Machærirhynchus flaviventer secundus Mathews, Nov. Zool., Vol. XVIII., p. 322, Jan. 31st, 1912 : Bartle Frere, North Queensland ; *id.*, List Birds Austr., p. 189, 1913.

DISTRIBUTION. North Queensland, from Cape York to Cardwell.

Adult male. General colour above black, varied with white and yellow ; base of fore-head and supraloral streak yellow, the latter extending over the eye on to the sides of the hinder crown and almost meets on the nape ; the feathers on the rump tinged with yellow ; median and greater upper wing-coverts broadly tipped with white ; outer edge of wing white ; outer edges of quills and innermost secondaries white or yellowish-white ; tail black tipped with white narrowly on the middle feathers but much broader on the lateral ones and extending along the outer webs of the two outermost feathers ; rictal bristles black ; chin and throat white ; fore-neck, sides of neck, breast, sides of body, and under tail-coverts bright yellow ; axillaries, under wing-coverts and inner margins of quills below white, outer edge of wing below black ; under-surface of flight-quills dark brown ; lower aspect of tail black with white tips to the outer feathers. Bill and feet black ; eyes brown. Total length 130 mm. ; culmen 12, wing 60, tail 52, tarsus 16. Figured. Collected at Kuranda, North Queensland, on the 24th of April, 1913.

Adult female. General colour of the upper-surface dark green varied with yellow, black, and white ; crown of head somewhat darker than the back with minute dark central spots to the feathers ; fore-head, supraloral streak, which is continued in a



H. Grönvold, del.

Witherby & Co

MACHAERIRHYNCHUS FLAVIVENTER.
(YELLOW-BREASTED FLYCATCHER).

SEISURA INQUIETA.
(RESTLESS FLYCATCHER).

YELLOW-BREASTED WHERRYBILL.

line over the eye along the sides of the crown and joining on the hind-neck, yellow ; lores, rictal bristles, and ear-coverts black ; upper wing-coverts blackish-brown, the median and greater series tipped with white which forms a double wing-bar ; flight-quills blackish with pale edgings to the outer webs and white margins to the inner ones ; the feathers on the rump tipped with yellow ; tail blackish tipped with white which increases in extent towards the outermost where it occupies the entire outer web ; chin, throat, and fore-neck, pure white ; breast and sides of body sulphur-yellow with dark markings to the feathers ; middle of abdomen and thighs white ; under tail-coverts bright lemon-yellow ; outer margin of wing below blackish ; axillaries, under wing-coverts, and inner margins of quills below white ; under-surface of flight-quills blackish-brown ; lower aspect of tail blackish with white tips to the feathers, similar to the upper side ; eyes brown. Measurements the same as in the male. Figured. Collected on the Barron River, North Queensland, on the 23rd of May, 1912.

Fledglings. "Resemble the adult female, but are browner on the upper-parts ; the superciliary stripe is duller in colour and almost meets on the occiput ; chin and throat white tinged with yellow ; remainder of the under-surface pale yellow, becoming slightly lighter on the under tail-coverts." (North.)

Nest. "Saucer-shaped . . . constructed of dried flowering plant stalks, matted together with cobwebs, the inner portion consisting entirely of fine dried spiral plant-tendrils." Outside measurements 3 inches by $1\frac{3}{4}$ deep. Inside 2 by a $\frac{1}{2}$ inch deep. (North.)

Eggs. Clutch, two. White with a zone round the larger end of purplish-red spots. 17 mm. by 13.

Breeding-season. September to December.

BARNARD, recording *M. flaviventer* from Cape York, wrote: "These birds are only found in dense scrubs, and always in pairs. Male bird principally constructs the nest, and keeps up a continual whistling song during the process, drawing one's attention to the nesting site."

This was confirmed by Dr. W. Macgillivray: "Always found in the scrub, where it finds its living amongst the leaves and branchlets from within two feet of the ground to the tops of the scrub trees, snapping up the insects which cling to the leaves. Whilst building the male is constantly calling, at the same time lending aid in the construction of the nest. Although the male whistles when searching for food, a more persistent whistling is usually an indication that a nest is being built."

Messrs. Campbell and Barnard, writing of the Cardwell form, comment: "These yellow-breasted, broad-billed birds were very fascinating to observe. It would be difficult to believe that a bird with such a comparatively restricted habitat really has a second or subspecies, as indicated by Mr. Mathews." Fortunately we are not concerned with "beliefs," but are only dealing with facts.

Bowyer Bower noted of the birds at the Barron River: "Very tame, and has a peculiar note, a pretty little warbling and very characteristic song, by which one is able to follow it. Generally sits on a hanging vine between two trees, from which it catches flies, always returning to the same spot."

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I would draw attention to a note by Mr. Campbell reading : " However, it is recorded that Mr. Illridge in former years had shot the bird as far south as the Greenwood Scrub, near Brisbane."

I think there must have been some error in this record, as this is so typically a bird of the "New Guinea" style that a most southern record like the one suggested would be a very valuable item, were it authenticated.

Its allies are few in number, and are restricted to the Papuan Region, so that while it would range as far south as Cardwell, its occurrence near Brisbane would be quite unexpected.

Gould at once instituted a new genus for this species when he received it from Macgillivray, who informed him that it was shot at Cape York by Mr. James Wilcox, who observed it on the skirts of one of the dense brushes or jungles, making short flights in the air, snapping at passing flies, and returning again to the same tree, the *Wormia alata* of botanists, distinguished by its red papery bark, large glossy leaves and handsome yellow flowers, which attract numbers of insects.

Two Australian subspecies are recognisable :

Machærirhynchus flaviventer flaviventer Gould.

Cape York, North Queensland.

Machærirhynchus flaviventer secundus Mathews.

Cairns district, North Queensland.

Separated on account of its larger size.

There are only two or three other species of this distinct genus, and they seem easily separable. Rothschild and Hartert considered the Aru Island birds as conspecific with the Queensland ones, but Ogilvie-Grant wrote : " I can see no reason for regarding this form (*M. xanthogenys*) as a subspecies of the Australian *M. flaviventer* Gould, which is distinguished at a glance from the several New Guinea species by its black ear-coverts and olive-green back in the adult stage. . . . I consider it most misleading to place the present species as a subspecies of *M. flaviventer*."

Other New Guinea species bear the names *M. albifrons* Gray, and *M. nigripectus* Schlegel, but no form is as yet known from the Northern Territory. This is good evidence in connection with the distribution of Papuan-Australian species, as most of these seem to have come into Australia via Cape York, and thence distributed westwards.

GENUS—SEISURA.

SEISURA Vigors and Horsfield, Trans. Linn. Soc.

(Lond.), Vol. XV., pt. I., p. 249, Feb. 17, 1827.

Type (by monotypy) *Turdus inquietus* Latham.

Also spelt—

Sisura Strickland, Ann. Mag. Nat. Hist., Vol. VI., p. 422, 1841.

VIGORS and Horsfield wrote: "It is, however, sufficiently distinguished from *Rhipidura* by the tail being even, not rounded, at the end. The bill also is much more lengthened, more depressed and stronger; and it is deficient in those elongated bristles which protect the *rictus* of the preceding birds. The formation of the wing also of both these genera will be observed, from the characters given of each, to be materially different, and the marked scutellation of the *tarsi* separates the present group from the preceding, and indeed from most of the *Muscicapidæ* that we have as yet had an opportunity of examining."

Gould commented: "The present genus and *Rhipidura* are mere modifications of each other; a difference in structure, however, exists of sufficient importance to justify their separation, and, as is always the case, a corresponding difference is found in the habits and actions of the species."

This genus seems to have developed from a "Rhipiduroid" ancestor, recalling *Leucocirca* in most respects, but recently it has been separated and placed alongside *Arses*, the glossy head and female breast band suggesting that relationship.

Compared with *Leucocirca*, which Vigors and Horsfield included in *Rhipidura*, the bill is much more lengthened, more compressed laterally not depressed; rictal bristles are present, but not so numerous or prominent. The wing formula is practically the same, while the distinct scutellation remarked upon can also be seen in specimens in all the "Rhipiduroid" series.

Order PASSERIFORMES.

No. 483.

Family MUSCICAPIDÆ.

SEISURA INQUIETA.

RESTLESS FLYCATCHER.

(PLATE 407.)

Turdus inquietus Latham, Index Ornith. Suppl., p. XL., after May 30th, 1801: New South Wales.

Turdus inquietus Latham, Index Ornith. Suppl., p. XL., 1801.

Turdus dubius Latham, *ib.*: same locality.

Not *Turdus dubius* Bechstein, *Germein Naturg. Deutschl.*, Vol. IV., p. 240, (pref. March) 1795.

Turdus volitans Latham, *ib.*, p. XLI.: same locality.

Turdus muscicola Latham, *ib.*, p. XLIII.: same locality.

Restless Thrush Latham, Gen. Synops. Birds Suppl., II., p. 181, 1801.

Doubtful Thrush Latham, *ib.*, p. 182.

Volatile Thrush Latham, *ib.*, p. 183.

Flycatching Thrush Latham, *ib.*, p. 185.

Seisura volitans Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 250, 1827.

Seisura inquieta* Vigors and Horsfield, *ib.*; Gould, Birds Austr., pt. xxxii. (Vol. II., pl. 87), Sept. 1st, 1848; *id.*, Handb. Birds Austr., Vol. I., p. 246, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 407, 1879; Ramsay, Tab. List Austr. Birds, p. 6, 1888; Hall, Key Birds Austr., p. 19, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 124, 1901; Milligan, Emu, Vol. II., p. 71, 1902 (W.A.); Le Souëf, *ib.*, p. 143, 1903 (N.T.); North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 135, 1903; A. G. Campbell, Emu, Vol. V., p. 141, 1906: King Island; Mathews, Handl. Birds Austral., p. 66, 1908; Hall, Emu, Vol. IX., p. 128, 1910 (S.A.); S. A. White, *ib.*, Vol. XII., p. 134, 1912; Agnew, *ib.*, Vol. XIII., p. 95, 1913 (Q.); Macgillivray, *ib.*, 168, 1914 (Gulf); *id.*, *ib.*, Vol. XV., p. 53, 1915; Chisholm, *ib.*, p. 147.

Seisura nana Gould, Ann. Mag. Nat. Hist., Ser. IV., Vol. VI., p. 224, Sept. 1st, 1870: "Northern Australia" = Northern Territory (West); Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 408, 1879; Ramsay, Tab. List Austr. Birds, p. 6, 1888; Hall, Key Birds Austr., p. 19, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 126, 1901; North, Proc. Linn. Soc. N.S.W., Vol. XXVII., p. 207, 1902; *id.*, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 137, 1903; Mathews, Handl. Birds Austral., p. 66, 1908; Hill,

* Also spelt *Sisura*.

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Emu, Vol. X., p. 276, 1911 (N.W.A.); *id.*, *ib.*, Vol. XII., p. 257, 1913 (N.T.);
Witmer Stone, Austral Av. Rec., Vol. I., p. 159, 1913.

Seisura inquieta inquieta Mathews, Nov. Zool., Vol. XVIII., p. 323, Jan. 31st, 1912;
id., List Birds Austr., p. 189, 1913.; Belcher, Birds Geelong, p. 244, 1914.

Seisura inquieta nea Mathews, Nov. Zool., Vol. XVIII., p. 323, Jan. 31st, 1912: (Dawson
River) Queensland; *id.*, List Birds Austr., p. 189, 1913.

Seisura inquieta westralensis Mathews, Nov. Zool., Vol. XVIII., p. 323, Jan. 31st, 1912:
Broome Hill, South-west Australia; *id.*, List Birds Austr., p. 189, 1913.

Seisura inquieta nana Mathews, Nov. Zool., Vol. XVIII., p. 323, 1912; *id.*, List Birds
Austr., p. 189, 1913.

DISTRIBUTION. Australia. Not Tasmania? (except as an accidental straggler).

Adult female. General colour of the upper-surface glossy steel-blue including the top
of the head, hind-neck, sides of face, upper wing-coverts, upper tail-coverts, and
tail; back rather paler than the head and tinged with slate-blue; flight-quills pale
brown except the innermost secondaries, which are blackish; throat and under-
surface white with a tinge of buff on the breast and sides of the body; thighs
dusky-grey; axillaries and under wing-coverts black; under-surface of flight-quills
greyish-brown; lower aspect of tail black. Bill blue-black; eyes and feet black.
Total length 167 mm.; culmen 13, wing 87, tail 79, tarsus 19. Figured. Collected
at Normanton, Gulf of Carpentaria, North Queensland, on the 31st of March, 1914.

Adult male. Similar to the above.

Fledgelings. "Dusky blackish-brown above, the scapulars being largely tipped with
dull white; quills and upper wing-coverts dull brown, the latter having buffy-white
tips. Throat and upper-part of the breast white washed with ochreous-buff."
(North.)

Nest. Cup-shaped. Composed of grass or fine bark, held together with spider's web.
Outside with lichen adhering. Lined with soft materials. Outside measurements
3 to 3½ inches by 2 to 2½ deep. Inside 2 to 2½ by 1½ to 2 deep.

Eggs. Clutch, three to four. White or buff, with a zone of umber and lavender spots.
18-20 mm. by 14-15.

Breeding-season. August to January.

FOUR paintings of this species appear among the Watling drawings, and to each
of these Latham gave a different name, but referred them all to the same
genus, viz., *Turdus*, the trivial names being *inquietus*, *dubius*, *volitans* and
musculicola in that order, the vernacular equivalents being Restless, Doubtful,
Volatile and Flycatching; in connection with the third named, writing: "Is
not uncommon; observed, in company with another of the *Grosbeak* genus, to
hover frequently about two feet from the ground, making sudden darts at some-
thing, which on more minute attention was found to be a sort of worm, which
this bird by a chirping note and tremulous motion of the wings, with the tail
widely expanded, seemed to fascinate or entice out of its hole in the ground."
The account adds "that the bird itself is in its turn frequently fascinated by a

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Snake ; but this circumstance we have reason to suppose is not peculiar to this species, as we find it recorded of other birds." "Called 'Bana-will-will' ; said to feed on flies and insects," as to the last named.

Caley's notes read : "This bird is called by the colonists *Dishwasher*. It is very curious in its actions. In alighting on a stump of a tree it makes several semicircular motions, spreading out its tail at the time, and making a loud noise, somewhat like that caused by a razor-grinder when at work. I have seen it frequently alight on the ridge of my house, and perform the same evolutions. I have often considered it, when I witnessed these manners, to be the *Wagtail* of the colony. The stumps of trees on which it alights are those which have been left standing, where the ground has been cleared ; the trees themselves having been cut down about a yard from the ground."

Gould added : "I observed it in every part I visited, both among the brushes as well as in the more open portions of the country, in all of which it is apparently a stationary species. It is a bird possessing many peculiar and very singular habits. It not only captures its prey after the usual manner of the other Flycatchers, but it frequently sallies forth into the open glades of the forest and the cleared lands, and procures it by poisoning itself in the air with a remarkably quick motion of the wings, precisely after the manner of the English Kestrel, every now and then making sudden perpendicular descents to the ground to capture any insect that may attract its notice. It is while performing these singular movements that it produces the remarkable sound which has procured for it from the colonists of New South Wales the appellation of the 'Grinder.'"

Gilbert's notes from Western Australia follow : "This bird is found in pairs in every variety of situation. Its general note is a loud harsh cry several times repeated ; it also utters a loud clear whistle ; but its most singular note is that from which it has obtained its colonial name, and which is only emitted while the bird is in a hovering position at a few feet above the ground ; this noise so exactly resembles a grinder at work that a person unaware of its being produced by a bird might easily be misled. Its mode of flight is one of the most graceful and easy imaginable ; it rarely mounts high in flying from tree to tree, but moves horizontally, with its tail but little spread, and with a very slight motion of the wings. It is during this kind of flight that it utters the harsh cry above mentioned, the grinding note being only emitted during the graceful hovering motion, the object of which appears to be to attract the notice of the insects beneath, for it invariably terminates in the bird descending to the ground, picking up something, flying into a tree close by, and uttering its shrill and distinct whistle."

Mr. T. P. Austin has written me that : "The Restless Flycatcher is fairly

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numerous at Cobbora, New South Wales, the whole year, but more plentiful during the spring and summer months, and it is mostly seen in pairs near water, either at rivers, creeks, dams or lagoons, also about dwellings, perfectly fearless of man; they have a great fancy for perching on one's rod while fishing. It is often called the Crested Wagtail; this is owing to it frequently erecting the feathers on the crown of the head. It is also known by the name of 'Scissor-grinder,' owing to its peculiar grinding notes, which much resemble the sharpening of scissors on an emery wheel, which are more often uttered while hovering within a few feet of the ground in search of insects, agitating the wings the while, but may be heard at any time. It also has another call which is a clear, double note. All these calls are more frequently heard during the warmer months, seldom in the winter. The birds become very savage when their nest is approached."

Chisholm recorded that the "scissors-grinding" effect was not uncommonly uttered while sitting down, though most writers had copied Gilbert's note to the effect that it was "only emitted when hovering." This was published in the *Emu* for 1912 and 1915.

I here reproduce a note sent me for the purpose of this work as long ago as 1908 by Mr. E. J. Christian, of Victoria, and it is only just that this should be recognised. Mr. Christian wrote me: "In this district this species is fairly common, but only along creeks or near swamps. I have never seen it more than two or three hundred yards from a creek; it seems to prefer to be near water, and I have never yet seen it out on the open plain or yet even in the timber, even though there may be watercourses. It is extremely graceful and, although 'black and white,' is very pretty. It has four different notes: first, it has a harsh and guttural-like note; then it has another, which sounds like 'Phang-phang' (generally repeated twice, and when bird is on the wing, but sometimes more often if the bird be excited); thirdly, a sweet, clear note, viz., 'Twee-twee-twee,' very much like a canary, though clearer and sweeter. This note can be heard most of the time when the bird is in a tree, and is never repeated more than three times in succession. The last note is its most peculiar one, and it is from this note that it gets its popular name, the 'Scissors-grinder.' To hear him for the first time is, indeed, puzzling, for a queerer note was surely never made by a bird. It sounds just like a pair of scissors being ground, or something to that effect. Gilbert, writing from West Australia, states (quotation given as reproduced above). From my observations, I must beg to differ. I think in his statement '*only emitted*' is incorrect. Of course, I do not speak for Western Australia, but for this district, Northern Victoria, I have noted that as often as not the bird is sitting on a post or on the ground making this peculiar noise. I

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frequently see it fluttering in the air and dart down without having made any noise at all. I think his last sentence also differs from my conclusion, viz., 'Motion, not noise, frightens insects.' I have tested this on many insects and have found it correct. Go near any insect, especially a winged one, and make a noise. It is not disturbed. Pass your hand over it and it soon goes. The *R. tricolor* hops along the ground in search of food and repeats 'Chick-ee, chickee,' but this is not meant to disturb insects, it is merely a note, and so in the case of the present species. As a rule they are very tame, and one can approach very close by imitating their clear 'Twee-' like note. I have often done so, just to have a good look at the bird. Although its tail is not such a fanlike structure as that of *R. tricolor*, it can extend it a little; again, this species has a flat head. Its chief food here is white ants and a small white moth, and now and then a butterfly. Flies are by no means scarce in this quarter, yet I have not seen this bird catching them. (Later, Mr. Christian wrote: 'I have just been watching one of these birds catching flies for a quarter of an hour, and he never once uttered his peculiar grinding notes, but after swallowing each fly he would give vent to two or three notes.') Last spring a pair built in an apple-tree, and they were exceedingly tame, the hen especially so, as many times I stroked her glossy back while on the nest. When the young came out of the nest, for two or three days they did not venture out of the tree, and were fed by the parents, and were quite tame, as if the parents had told them not to fear, for they never once issued that warning note so often given by parents to young to advise them that danger is near."

Mr. Tom Carter has written me: "The Restless Flycatcher is a common bird in the south-west, and was observed at Kellerberin, but was never noted by me in the Gascoyne or north-west. Young birds were seen in nest at Broome Hill, Nov. 11, 1906."

Mr. J. P. Rogers, under the name *Seisura nana*, wrote: "This is rather rare in West Kimberley, though in Nov.-Dec. 1910 they were numerous at Derby; at Point Torment and Marngle Creek they were very rare, and none were seen at Mungi. They are usually found on the banks of the river or large water-holes."

Hill wrote: "Fairly common near the Drysdale River in June, but scarce in other localities. The birds are extremely shy when nesting, and will desert a partly built nest if watched, even from a distance. One pair commenced and pulled down three nests successively, then laid in a fourth nest, which was almost overturned during a storm. When visited on Dec. 24, 1909, this nest was found to contain one egg. The other was afterwards found on the ground seventy feet below. The damaged nest was removed for the fifth time, and rebuilt in

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an inaccessible position. None of these nests was less than seventy feet from the ground, and all were built on slender branches of the tallest trees."

Rogers's experience was very different, as follows: "Nov. 29, 1908. Found both birds at a nest, finished, but deserted on Dec. 10. It was built in a thin limb of a large paper-bark tree growing on the bank of a large water-hole, the limb hanging over the water, and was seven feet from surface. Dec. 12, 1908. Another nest found in a similar position, three feet from surface of water. On Dec. 2, 6, 11, 1910, three nests were found, all in paper-bark trees and from eight to ten feet from the ground only.

In a black and white bird variation is mainly seen in size, and in this case quite a noticeable degree of difference is observed. Thus fifty years ago Gould separated as a distinct species a form from Northern Australia sent by Waterhouse, on account solely of its smaller size. Waterhouse's birds were principally from the Northern Territory, and this should be accepted.

All small birds from the north and north-west were called *S. nana*, but on criticising the series when preparing my "Reference List" I found four forms were separable; thus

Seisura inquieta inquieta (Latham).

New South Wales, Victoria, South Australia.

Seisura inquieta nea Mathews.

Queensland and Eastern Northern Territory.

"Differs from *S. i. inquieta* in having shorter tail and wings; wing 99 mm. Type from Dawson River, Queensland."

Seisura inquieta westralensis Mathews.

South-west Australia.

"Differs from *S. i. inquieta* in its larger size; wing 113 mm. Type from Broome Hill, South-west Australia."

Seisura inquieta nana Gould.

North-west Australia.

"Gould's measurements: bill $\frac{3}{4}$, wing $3\frac{3}{4}$, tail 3, tarsi $\frac{3}{4}$ inch."

I maintained this subdivision in my "List," adding the specimens from the western Northern Territory to the last named. This is fortunate, as the last-named locality must now be regarded as the original locality of Gould's name. Upon reconsideration I find that two series can easily be distinguished which might be regarded by some workers even as distinct species: a southern one ranging from the Dawson River, Queensland, through New South Wales, Victoria, South Australia to South-west Australia, and a northern one from Derby, North-west Australia along Northern Australia to Normanton, Queensland. These differ in size so appreciably that there can be no confusion on that

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score. Thus two well-defined forms are noticeable with definite variations of each, and five subspecies are here recognised, with a sixth suggested.

Seisura inquieta inquieta (Latham).

New South Wales, Victoria, and South
Australia.

Seisura inquieta westralensis Mathews.

South-west Australia (coastal).

Seisura inquieta nea Mathews.

Queensland.

Smaller than typical, but larger than *nana*.

Seisura inquieta nana Gould.

Through Northern Territory, from Normanton,
Queensland, to Parry's Creek, North-west
Australia.

Seisura inquieta rogersi subsp. nov.

Derby, North-west Australia.

A good series from this locality are all definitely smaller than the preceding and constitute the smallest race. It is possible that interior Australian birds might be separated as another race, but the series at hand is insufficient.

GENUS—OPHRYZONE.

OPHRYZONE Ramsay, Proc. Zool. Soc. (Lond.), 1868,
p. 383, Oct. 1. Type (by monotypy) *Arses kaupi* Gould.

Also spelt—

Orphryzone Mathews, List Birds Austr., p. 190, 1913.

GOULD stated: "I have some little doubt as to the propriety of placing this bird in the genus *Arses*, but rather than multiply the number of genera, perhaps unnecessarily, I have assigned it a place therein, as it accords more nearly with that form than with *Monarcha*, the only other genus to which it presents alliance."

Ramsay wrote: "In habits and actions this pretty species closely resembles the species of *Monarcha*; they are lively and active, like the *Rhipidura albiscapa*, but do not fan the tail like that species. One peculiarity which seems to have escaped Mr. Gould's scrutiny is *the enlargement of the eyelid into a narrow flat rim, crenulated on its outer margin*. This rim, which is one-twentieth inch in width, and encircles the whole of the eye, is of a bright indigo-blue in the living bird, and gives it a very curious and remarkable appearance; this fact, added to the *unproportionately long hind-toe and nail*, may, in some degree, help to decide to which genus the bird really belongs, or form sufficient grounds for the foundation of a *new genus*. If such be deemed the case, I beg to propose the generic term *Ophryzone*, on account of these peculiarities."

Compared with the type of the genus *Arses* the present form is smaller, with a smaller, broader bill and with a different wing formula. The fourth, fifth and sixth primaries are subequal and longest, the third equal to the seventh which exceeds the second while the first is short, being less than half the length of the second.

In the feet the disproportionately long hind-toe and nail are diagnostic. This seems another of the "Cairns" peculiar forms of birds, as it is elsewhere unknown.

Order PASSERIFORMES.

No. 484.

Family MUSCICAPIDÆ.

OPHRYZONE KAUPI.

BLACK-BREASTED FLYCATCHER.

(PLATE 408.)

ARSES KAUPI Gould, Birds Austr. Suppl., pl. 10, pt. I., March 15th, 1851: North coast of Australia = Cairns, Queensland.

Arses kaupi Gould, Birds Austr. Suppl., pl. 10, pt. I., 1851; *id.*, Handb. Birds Austr., Vol. I., p. 251, 1865; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 585, 1876; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 51, 1876; Ramsay, *ib.*, Vol. II., p. 182, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 411, 1879; Ramsay, Tab. List Austr. Birds, p. 6, 1888; *id.*, Ibis, 1896, p. 156; Hall, Key Birds Austr., p. 19, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 126, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 138, 1903; Mathews, Handl. Birds Austral., p. 67, 1908; *id.*, Nov. Zool., Vol. XVIII., p. 323, 1912; H. L. White, Emu, Vol. XV., p. 62, 1915; Campbell and Barnard, *ib.*, Vol. XVII., p. 24, 1917.

Ophryzone kaupi Ramsay, Proc. Zool. Soc. (Lond.), 1868, p. 383; Mathews, List Birds Austr., p. 190, 1913.

Monarcha kaupi Gray, Handl. Gen. Sp. B.M., Vol. I., p. 321, 1869.

Arses terræreginæ Campbell, Proc. Roy. Soc. Vict., n.s., Vol. VII., p. 25, Jan. 1895: Bloomfield district, Queensland.

DISTRIBUTION. North Queensland (Cairns district).

Adult male. Crown of head, nape, and sides of face velvety-black; chin, throat, sides of neck, and hind-neck white with black hair-like tips to the feathers on the chin and throat and dark narrow fringes to those on the hind-neck; upper-back, a wide band across the breast, wings, upper tail-coverts and tail black, becoming smoke-brown on the apical portion of the flight-quills; scapulars and feathers on the rump white with black bases; rectal bristles black; abdomen, lower flanks, under tail-coverts and axillaries, sides of the body and thighs black; under wing-coverts and under-surface of quills dark brown, paler on the latter; lower aspect of tail blackish. Eyes dark brown, rim round eye light blue; bill light slate-blue, feet and legs blue-grey. Total length 149 mm.; culmen 10, wing 82, tail 76, tarsus 22. Figured. Collected at Cairns, North Queensland, in October 1902.



H. Grönvold, del.

Witherby & Co.

ORPHRYZONE KAUPI.
(PIED FLYCATCHER).

ORPHRYZONE LOREALIS.
(FRILL NECKED FLYCATCHER).

BLACK-BREASTED FLYCATCHER.

Adult female. Crown of head and sides of face velvety-black; a band on the hind-neck white with blackish tips to the feathers; sides of neck, back, wings and tail black; apical portion of flight-quills blackish-brown; upper tail-coverts and tail black; scapulars and feathers of the rump greyish-white with blackish bases; rectal bristles black; throat-patch white, much more restricted than in the male, with black hair-like tips to the feathers; fore-neck and breast black; much more extended than in the male; abdomen, lower flanks, under tail-coverts, and axillaries white; sides of body dusky; thighs and under wing-coverts blackish; under-surface of quills dark brown; lower aspect of tail blackish. Eyes dark brown, rim round eye light blue, bill light slate-blue, feet and legs blue-grey. Total length 150 mm.; culmen 10, wing 79, tail 74, tarsus 22. Figured. Collected at Cairns, North Queensland, in October 1902.

Immature. "Are duller in colour than the female, and have the lower portion of the back and the rump brownish-grey; upper tail-coverts blackish-brown; wings and tail brown; the feathers on the hind-neck being broadly tipped with dull black, and those on the chin and throat having brownish-black bases giving it a mottled appearance; band on the breast dusky-brown, with pale brown tips to most of the feathers; bill yellowish-brown at the base, blackish-brown at the tip." (North.)

Nest. Open basket or hammock-shaped, swung on two sides from two parallel twigs of a vine. Composed of tendrils or dried part of small plants and bound together with cobweb, and decorated with lichen and lined with fine rootlets. Outside measurements $2\frac{1}{4}$ to $2\frac{1}{2}$ inches by 2 deep. Inside 2 by $1\frac{1}{2}$ deep.

Eggs. Clutch, two. Whitish, spotted, more at the larger end, with reddish and lavender spots. 19-21 mm. by 14.

Breeding-season. November to January.

RAMSAY'S notes read: "On a better acquaintance with this species I find its habits closely resemble those of *Rhipidura albiscapa*, especially in spreading its tail, creeping and hopping, with its wings half open, about on the trunks of the trees, often head downwards, searching under leaves and loose bark for insects, or darting out here and there to capture one on the wing. Its actions are lively and pleasing in the extreme; and when close by, the blue ring around the eye is plainly visible and conspicuous. This species is not rare, but seems to frequent the same parts of the dense scrubs throughout the whole season. I noticed several pairs in the Herbert River brushes, and frequently returned to the same place day after day to watch them and wait for Casuarines (*sic*); at such times I had ample opportunities of studying the habits and actions of many other species, which would frequently come within a few feet of me, and in more than one instance perched on my hat."

Messrs. Campbell and Barnard, also writing about Rockingham Bay birds, state: "We observed Red Flycatchers in various phases of plumage—a reason why northern collectors have somewhat confused the species. These are very lively and showy little creatures, and were sometimes seen hunting a tree bole

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for food, after the manner of Treecreepers, only it did not trouble the Fly-catcher whether it went up or down."

Not much except the above seems to have been written in connection with the habits of this peculiar bird, though its eggs and nest are fairly well known. Its very restricted distribution coincides with other peculiar forms, but on account of its small size and plain coloration it has not attracted so much attention. No subspecies are known, and at present its closest ally seems to be the Cape York representative of the genus *Arses*, *lorealis*, for which I introduce a new genus.

GENUS—PROSEISURA.

MATHEWS, Bull. Brit. Orn. Club, Vol. XLI., p. 35,

Nov. 30, 1920. Type (by original designation) *Arses lorealis* De Vis.

AFTER continued consideration I decided to introduce the above new name to attract attention to a matter which would otherwise be overlooked, as it has been up to the present. This species was described as *Arses* and is separable from *Ophryzone* by its normal feet. Compared with *Arses* the birds are smaller, the bill broader and less hooked, the wing is rounded, the fourth and fifth primaries longest, the third and sixth subequal and a little less, the second much shorter and twice the length of the first. The tail is long and square. The feet have the toes and claws normal, the tarsus obsoletely scutellate in front. The male is black and white, the female nearly similar.

This suggests that *Seisura* is an Australian derivative of the ancestor of this form, and its large size and distinct appearance are due to its isolation. It is remarkable that the northern form of *Seisura* more nearly approaches this bird in size, though it has a much longer bill ; in the south where a much larger bird has evolved, in some cases the bill has not been proportionately elongated. The rictal bristles are well developed in the present species, while they are obscure in *Seisura*, and the bare eye rim is absent in the latter. The relationships will be better realised through study of the nestlings and plumage changes than by osteological study, though the latter should be undertaken in conjunction with a series of *Monarcha*, *Piezorhynchus* birds. It may be noted here that a species of *Monarcha* has an eye rim while retaining the typical *Monarcha* coloration, and that Mr. Campbell has recorded that the eggs of these species recall those of *Monarcha*.

Order PASSERIFORMES.

No. 485.

Family MUSCICAPIDÆ.

PROSEISURA LOREALIS.

FRILL-NECKED FLYCATCHER.

(PLATE 408.)*

ARSES LOREALIS De Vis, Proc. Linn. Soc. N.S.W., Ser. II., Vol. X., p. 171, Sept. 9th, 1895 : Cape York, Queensland.

Arses lorealis De Vis, Proc. Linn. Soc. N.S.W., Ser. II., Vol. X., p. 171, 1895 ; Hall, Key Birds Austr., p. 19, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 128, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 139, 1903 ; Mathews, Handl. Birds Austral., p. 67, 1908 ; Barnard, Emu, Vol. XI., p. 26, 1911 ; Macgillivray, *ib.*, Vol. XIII., p. 169, 1914 ; *id.*, *ib.*, Vol. XVII., p. 199, 1918.

Arses candidior "De Vis" Le Souëf, Ibis, July 1897, p. 397 : Cape York : *nomen nudum* ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 140, 1903.

Arses telescopthalmus lorealis Mathews, Nov. Zool., Vol. XVIII., p. 324, Jan. 31st, 1912.

Orphryzone (sic) *lorealis* Mathews, List Birds Austr., p. 190, 1913.

DISTRIBUTION. North Queensland (Cape York).

Adult male. Crown of head, nape, sides of face, and chin velvety-black ; upper back, wings, upper tail-coverts, and tail black ; some of the innermost greater upper wing-coverts edged with white at the tips ; flight-quills blackish-brown on the inner webs some of which have white margins ; scapulars and feathers of the lower back and rump white with blackish bases ; hind-neck, throat, breast, abdomen, flanks and under tail-coverts white like the axillaries and inner under wing-coverts with blackish bases to the feathers, which are most restricted on the throat and most extensive on the sides of the body, lower back, and rump ; outer or marginal under wing-coverts and thighs black ; under-surface of flight-quills dark brown with whitish edges at the base ; lower aspect of tail black ; eyes black, rim round eyes cobalt-blue, bill blue, feet slate colour. Total length 150 mm. ; culmen 20, wing 80, tail 75, tarsus 18. Figured. Collected at Piara Scrubs, Cape York, North Queensland, on the 29th of July, 1913.

Adult female. Crown of head, nape, and sides of face velvety-black ; upper back, wings, upper tail-coverts, and tail black ; inner webs and tips to flight-quills dark smoke-brown with whitish margins to some of the inner ones ; scapulars white with blackish bases ; lower back and rump dark slate-grey with white tips to a few of the feathers ; rictal bristles black ; lores dull white ; chin white with black hair-like tips to the feathers ; hind-neck, sides of neck, throat, breast, abdomen, and under tail-coverts white like the axillaries and inner under wing-coverts with dark bases to the feathers ; thighs soot-black like the marginal under wing-coverts. Eyes

* The Plate is lettered *Orphryzone lorealis*.

FRILL-NECKED FLYCATCHER.

dark brown, rim round eye bright blue, feet blue-grey, bill slate-blue. Total length 145 mm. ; culmen 10, wing 75, tail 69, tarsus 17. Figured. Collected at Somerset, Cape York, North Queensland, on the 4th of December, 1902.

The following is a description of the type specimen of *Arses lorealis* De Vis which I drew up in 1907.

Adult male. General colour above dull black, the head more glossy blue-black, separated from the mantle, by a broad white collar in the form of a frill ; scapulars white, forming a shoulder patch, the bases of the feathers dusky-blackish ; lower back dull ashy-grey, upper tail-coverts blue-black ; tail-feathers brownish-black, with dusky cross-bars under certain lights ; wing-coverts and quills dusky-black, the feathers somewhat blue-black externally ; lores dull white ; feathers below the eye and ear-coverts black ; cheeks, throat, and under-surface of the body pure white, including the under tail-coverts ; all the feathers of the breast and abdomen with black bases, which are very distinct on the sides of the breast, where they produce a mottled appearance ; under wing-coverts and axillaries pure white ; the edge of the wing mottled with black ; lower primary coverts dull ashy ; quills below dusky-brown, dusky-ash colour on the inner webs ; bill light brown ; feet black ; iris brown. Total length 148 mm. ; culmen 12, wing 84, tail 68, tarsus 19.

Nest. Very similar to that of *Ophryzone kaupi*.

Eggs. Clutch, two. Whitish, spotted with dull and purplish-red. 19 mm. by 14.

Breeding-season. November to January.

WHEN De Vis introduced this new species he gave no details of its habits, etc., but diagnosed it : “*Arses* sp. with the lower-surface entirely white in the male, ochreous in a band on the lower throat in the female, and with white lores in both sexes.”

Barnard has recorded : “Found only in scrubs ; nowhere plentiful. Several nests were found, but only one set of eggs was taken, the other nests being destroyed, probably by other birds, or vermin. A nest found on 9th November, 1910, was being attacked by a Rusty-breasted Shrike Thrush (*Pinarolestes rufigaster*), which appeared to be trying to pull the structure to pieces. The Flycatchers were vainly trying to drive the destroyer away, and, to assist them, I threw several sticks at the Thrush, which would only fly a short distance, and again return to the attack. I then shot it, and 9 days later secured a pair of eggs of the Flycatcher from the nest. Some of the birds shot had great numbers of thin worms, about 3 inches long, in the intestines.”

Macgillivray wrote : “It seems to search the stems of vines and trunks of trees for its insect food, hopping up round a big tree trunk and searching the crevices in the bark. It is a bird of the scrub, and nests in the wet months. It was fairly common on the Claudie, a denizen of the scrub, where its frail, open basket-like nest is usually seen suspended, hanging in mid-air between two parallel rootlets or vines. The eggs can usually be seen quite plainly from below through the fine network of the nest. On the 22nd December, after

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heavy rain had fallen, this species was very busy in the trees in the open forest round and even over our camp. The heavy rains seem to drive a lot of the scrub birds out into the open ; the scrub gets too dank and dark for them. They seem to find their food amongst the branches and leaves, searching these assiduously, and going from branch to branch. Mr. McLennan noted a few pairs on the Archer River."

No subspecies are known, and the species is very distinct from *Arses telescopthalmus*, with which I once confused it, in the female coloration, which in the latter is red-brown with a black cap and white abdomen.

GENUS—PIEZORHYNCHUS.

PIEZORHYNCHUS Gould, Proc. Zool. Soc. (Lond.), 1840,
p. 171, July 1841. Type (by monotypy) *P. nitidus* Gould.

Also spelt—

Pizorhynchus Finsch, Neu-Guinea, p. 168, 1865.

MEDIUM “Muscicapine” birds with long bills, long wings, long tail, small legs and feet.

The bill is very long, thin and keeled, side slopes steep ; the under mandible is not flattened, but rami comparatively strong. The rectal bristles are small and insignificant, four in number ; the nostrils are situated at base obscured by frontal feathering.

The wing has the first primary more than half the length of the second which is equalled in length by the tenth ; the fourth and fifth are equal and longest, the third and sixth a little shorter and subequal. The tail is almost square. The legs and feet are small and normal.

The coloration of the sexes is different, the male shining blue-black above and below, the female reddish above with a shining blue-black cap and white below.

When Sharpe split up the *Monarcha* series of birds he fell back upon this name as a substitute, and simply transferred the majority of the species to this genus name, though they were as badly placed here as under *Monarcha*. This was pointed out by Campbell in connection with the succeeding species, as he wrote : “The Doctors of the British Museum have placed this and similar species under the genus *Piezorhynchus*, but if the study of oology be taken into account, I think they should have been retained under Gould’s classification, *Monarcha*. Moreover, the eggs of *Piezorhynchus nitidus* are totally different from those of either *M. melanops*, *M. gouldi*, or *M. albiventris*.”

Ignoring this suggestion, Ogilvie-Grant, dealing with the birds of New Guinea (*Ibis, Jubilee Suppl. No. 2*), rejected *Piezorhynchus* altogether, and lumped the whole lot under *Monarcha* again. He gave no reasons for so doing, but was understood to base his results upon the intergradation of the species. Meanwhile he showed that one species he classed as *Monarcha* had been previously described as a *Rhipidura*. I deal with this under the genus *Monarcha*, but mention it here to indicate his generic limits, as I am sure no present-day Australian ornithologist would class *Monarcha* and *Rhipidura* together. It

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is difficult to identify New Guinea birds under the present conditions of genus lumping, and here again another complex may be noted. Reichenow introduced a new genus *Bathmisyrma*, species name *rufum*, and Rothschild and Hartert identified it as *Tchitreia rubiensis*, calling it *Monarcha rubiensis*, their comment, which I wish to note, being: "Although the vibrissæ on the gape are actually longer and thicker than in most of the other *Monarchæ*, they are in proportion to the size of the species not larger than in *M. chrysomela*." The species *chrysomela* is not closely allied to *Monarcha*, so that the criticism above is valueless. It is due to this guesswork at generic characters that there has been so much confusion in the nomenclature of New Guinea birds, each worker "guessing" at a different genus.

The acceptance of definite definable genera, even governed by colour, would obviate many mistakes and also lead to a more correct classification of these puzzling forms.



H. Gronvold, del.

Witherby & Co.

PIEZORHYNCHUS ALECTO
(SHINING FLYCATCHER)

Order PASSERIFORMES.

No. 486.

Family MUSCICAPIDÆ.

PIEZORHYNCHUS ALECTO.

SHINING FLYCATCHER.

(PLATE 409.)

[*DRYMOPHILA ALECTO* Temminck and Laugier, Planch. Color. d'Ois., 72^e livr. (Vol. IV., pl. 430), April 25th, 1827: "Celebes" error = Ternate. Extra-limital.]

PIEZORHYNCHUS NITIDUS Gould, Proc. Zool. Soc. (Lond.), 1840, p. 171, July 1841: North-west coast, Australia = Port Essington, Northern Territory.

Piezorhynchus nitidus Gould, Proc. Zool. Soc. (Lond.), 1840, p. 171, 1841; *id.*, Birds Austr., pt. XIV. (Vol. II., pl. 88), March 1st, 1844; *id.*, Handb. Birds Austr., Vol. I., p. 249, 1865; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 50, 1876 (N.Q.); Ramsay, *ib.*, Vol. II., p. 182, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 416, 1879; Ramsay, Tab. List Austr. Birds, p. 6, 1888; Hall, Key Birds Austr., p. 19, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 129, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 141, 1903; Mathews, Handl. Birds Austral., p. 67, 1908; Hill, Emu, Vol. X., p. 277, 1911 (N.W.A.); *id.*, *ib.*, Vol. XII., p. 257, 1913 (N.T.); Macgillivray, *ib.*, Vol. XIII., p. 169, 1914 (N.Q.); McLennan, *ib.*, Vol. XVI., p. 223, 1917 (N.T.); Macgillivray, *ib.*, Vol. XVII., p. 199, 1918 (N.Q.); Campbell, *ib.*, Vol. XVIII., p. 183, 1919 (N.T.).

Seisura nitida Gray, Handl. Gen. Sp. Birds B.M., pt. I., p. 327, 1869.

Monarcha chalybeocephalus nitidus Hartert, Nov. Zool., Vol. XII., p. 223, 1905.

Piezorhynchus nitidus wardelli Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 99, July 13th, 1911: Cooktown, Queensland.

Monarcha alecto nitida Mathews, Nov. Zool., Vol. XVIII., p. 324, 1912.

Monarcha alecto wardelli Mathews, *ib.*

Piezorhynchus alecto Campbell, Emu, Vol. XII., p. 20, 1912 (N.Q.).

Monarcha alecto melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 42, April 2nd, 1912: Melville Island, Northern Territory.

Piezorhynchus alecto tormenti Mathews, *ib.*, pt. 4, p. 91, Sept. 18th, 1912: Point Torment, North-west Australia.

Monarcha alecto campbelli Mathews, *ib.*, pt. 5, p. 126, Dec. 24th, 1912: Cape York, Queensland.

Piezorhynchus alecto nitidus Mathews, List Birds Austr., p. 190, 1913.

Piezorhynchus alecto tormenti Mathews, *ib.*

Piezorhynchus alecto campbelli Mathews, *ib.*

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Piezorhynchus alecto wardelli Mathews, *ib.*, p. 191.

Piezorhynchus wardelli McLennan, *Emu*, Vol. XVI., p. 223, 1917 (N.Q.); Campbell and Barnard, *ib.*, Vol. XVII., p. 24, 1917 (N.Q.).

DISTRIBUTION. Tropical North Australia, from Point Torment in the west to Cardwell in the east.

Adult male. General colour above glossy steel-blue-black on the top of the head, back, wings and tail; inner webs of flight-quills blackish-brown; a trace of obsolete cross-bars on the tail; rectal bristles black; base of fore-head and lores velvety-black; throat, breast, sides of the body, and upper-abdomen like the upper-surface; lower-abdomen, flanks, under tail-coverts, axillaries and under wing-coverts dull black; under-surface of flight-quills blackish-brown; lower aspect of tail black. Eyes and feet black; bill whity-blue, palate orange. Total length 168 mm.; culmen 13, wing 88, tail 74, tarsus 20. Figured. Collected at Utingu, Cape York, North Queensland, on the 5th of August, 1912, and is the type of *Monarcha alecto campbelli*.

Adult female. Crown of head, nape, hind-neck, sides of neck, and ear-coverts glossy blue-black with steel reflections; back, wings, and tail chestnut; bastard-wing, tips of primary-coverts, and first primary-quill blackish; inner webs of flight-quills blackish broadly margined with chestnut; rectal bristles black; base of fore-head, lores, and fore-part of face velvety-black; throat, breast, sides of the body, and middle of abdomen white like the axillaries and under wing-coverts; flanks and under tail-coverts tinged with buff; under-surface of quills dark brown with pale chestnut edgings; lower aspect of tail chestnut. Eyes black, feet blue-black, bill blue, palate orange. Wing 84. Figured. Collected at the same place as the male on the 6th of September, 1912.

Immature. Somewhat similar to the adult female.

Nest. Cup-shaped. Composed of strips of bark, bound up with spider's web. On the outside, decorated with pieces of bark and lichen. Lined with fine rootlets. Outside dimensions $3\frac{1}{4}$ to $3\frac{1}{2}$ inches by $2\frac{1}{2}$ deep. Inside $2\frac{1}{4}$ by $1\frac{1}{2}$.

Eggs. Clutch, two (to three). Bluish or greenish-white. Spotted with brownish and lavender spots; more on the larger end; sometimes forming a zone. 19–21 mm. by 14–15.

Breeding-season. October to January or February.

THIS is another of Gilbert's fine additions to the Australian Avifauna, and of it Gould wrote: "This Flycatcher is by no means scarce at Port Essington, but, from the extreme shyness of its disposition and the situations it inhabits, it is seldom seen; specimens, in fact, are not procured without considerable trouble and difficulty.

Gilbert's notes read: "Inhabits the densest mangroves and thickets, and is usually seen creeping about close to the ground among the fallen trees in the swamps, at which time it utters a note so closely resembling the croak of a frog that it might easily be mistaken for the voice of that animal; this peculiar note would seem to be only emitted while the bird is feeding on the ground; for when it occasionally mounts to the higher branches of the trees it utters rather

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a pleasing succession of sounds resembling *twit-to-twite*; on the slightest disturbance it immediately descends again to the underwood and recommences its froglike note."

Macgillivray has recorded: "The Shining Flycatcher is a bird of the muddy edges of the river, the mangroves, and tea-tree swamps, only rarely seen at any distance from the river bank in the scrubs. Several pairs were always to be noted on our going up or down the Claudie in our boat, running on the mud or flitting up into the trees or shrubs overhanging the water, the glossy black dress of the male contrasting with the rich rufous plumage of the female. The young males resemble the female in colouring. The first nest containing eggs was found on the 16th January. It was placed in a hanging loop of vine under sheltering leafage, 10 feet above the water. On the following day, when waiting in the boat for Mr. McLennan (who had gone ashore to get some Pigeons for the pot), a male bird of this species, moving about anxiously, directed my attention to a nest placed on a small branch of an overhanging tree at about 8 feet above high-tide mark. On Mr. McLennan's return we examined the nest, and found it to contain one egg. The male bird shares the task of incubation with the female. The male always seemed to be more agitated than the female when the nest was approached. The call is a pretty, whistling one. The bird was common on the Archer River."

Mr. J. P. Rogers wrote me from Point Torment, North-west Australia: "The male of this species has dark eyes, at least the ones I secured had almost black eyes. They are found here in the very densest mangrove scrub, and are usually seen creeping through the roots within a few inches of the ground. They are rare here, as I have only seen about eight or nine since I arrived. I saw this species on the Denham River, East Kimberley, about 40 miles inland in September 1906."

From Melville Island he wrote: "Oct. 7, 1911. A few of these birds have been seen in the mangroves. I find that the eyes of the male here are blackish-brown, the same as those at Point Torment. (Hall says the iris is scarlet.) Jan. 13, 1912. 10 miles S.E. of Snake Bay. This species is numerous in the dense growths along Jessie Creek, and around the edges of the great swamp, miles away from the mangroves. Jan. 26, 1912. Cooper's Camp. A nest found to-day contained three naked black-skinned young. The nest was built in a mangrove growing in a scattered clump on the beach."

Hill recorded from North-west Australia: "These beautiful and extremely shy birds were seen on the coast from Augustus Islands (lat. 15° 35' S.) northwards, where they live entirely on the mud or amongst the low branches and roots in the thickest belts of mangroves. The warning note of the male bird is three clear and distinct whistles, which are answered by the female in a call that

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may be likened to the creaking of a door. The nests are built from 4 to 6 feet above water level, of rough pieces of bark, closely woven together and lined with fine pieces of bark, twigs, and small dead leaves, or with rootlets. Eggs were taken from 5/1/10 to 20/3/3 (*sic*). From one nest, I took a set of eggs on 18/2/10 of the usual type, and on 20/3/10 a second set of pure white eggs. The irides of all male birds examined by me were umber, and not red (Hall, p. 19). Their food consists principally of minute shells, crabs, and a small species of black ant."

All the Australian birds of this form were named *Piezorhynchus nitidus* until I separated the Cooktown form as *P. nitidus wardelli* as "having a shorter and wider bill, the general colour deeper, and the measurements slightly larger."

A little later Mr. Campbell recorded the Cape York form as *Piezorhynchus alecto*, accepting the differential characters given in the *Catalogue of the Birds in the British Museum* as valid between *nitidus* and *alecto*, and having no extra-limital specimens for actual comparison. These read: "The Australian bird (*P. nitidus*) differs from *P. alecto* in possessing a much longer and thinner bill, while the females are thus contrasted—*alecto*, mantle light chestnut, like the back; *nitidus*, mantle dark ashy, shaded with the purple colour of the head, and separating the latter from the back, which is dark chestnut."

Simultaneously I separated the Melville Island form as "having a much wider, heavier bill" and then the North-west form as "having a much narrower bill, and in being smaller."

Upon receipt of Cape York birds I concluded that they differed "from typical birds in having a narrower bill, while the wing is longer."

Hartert had previously determined the Australian form as only sub-specifically separable from a New Guinea species, which he recognised as *chalybeocephalus*, and eliminating the generic term *Piezorhynchus*, called it *Monarcha chalybeocephalus nitidus*.

When my "Reference List" was prepared I followed this lead, but was able to correct the specific name, as *alecto* was the older name for the extra-limital form. Unfortunately when Ogilvie-Grant wrote up his report upon New Guinea birds (*Ibis, Jubilee Supplement No. 2*) he continued the incorrect usage, and, upon my pointing his error out, he replied with an absurd quibble without attention to facts; the facts were as stated by me, but recently Rothschild and Hartert have corrected the locality "Celebes" as given by Temminck, stating that this species does not occur at Celebes, and therefore selected as type locality Ternate, which is here accepted. At the same time they complained that, in naming the Cape York form, I did not make comparison with the other Australian races. Apparently they omitted, once more, to make

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themselves familiar with the literature of the species they were discussing, otherwise they would have read Campbell's paper, and easily understood the reason why I did not reiterate the features already pointed out by my predecessors in dealing with the species. Rothschild and Hartert concluded that *campbelli* was nearest *nitidus*, from which Campbell had absolutely separated it. While the material examined indicated that the subspecies were valid, using the features as characteristic then in vogue, it is possible that longer series may show that those are unstable, but may also show good colour characters in the females. Until these are received, it is best to accept the named subspecies; but the extra-limital forms are doubtful, as there may be different coloured females confused. I would continue to admit

Piezorhynchus alecto nitidus Gould.

Northern Territory.

Piezorhynchus alecto tormenti Mathews.

North-west Australia.

Piezorhynchus alecto campbelli (Mathews).

Cape York district, Queensland.

Piezorhynchus alecto wardelli Mathews.

Cooktown district, Queensland.

GENUS—SYMPOSIACHRUS.

SYMPOSIACHRUS Bonaparte, Comptes Rendus
Acad. Sci. Paris, Vol. XXXVIII., p.
650, 1854. Type (by original designa-
tion) *Drymophila trivirgata* Temminck.

THIS genus includes a series of birds sometimes placed under *Monarcha*, sometimes in *Piezorhynchus*. The coloration is peculiar, and according to Mr. Campbell the eggs would refer it to the former place in preference to the latter.

The bill is short and broad in comparison, the keel being present and the under mandible not much flattened. Six strong rictal bristles are present, in this item agreeing better with *Monarcha*, but from this genus the wing formula easily separates it.

The wing has the first primary short and narrow, less than half the second which is equalled in length by the tenth. The fourth, fifth and sixth primaries are subequal and longest, the third a little shorter and longer than the seventh.

The tail is long and a little rounded; the feet small and normal. It will be noted that in this series, the *Monarcha-Piezorhynchus* one, the wing formula does not vary a great deal, the bill formation is more or less similar, the tail is generally long and the feet small; the rictal bristles sometimes weak, sometimes strong. Consequently coloration is the only sure guide for grouping, and we can trace the variation in structure in colour groups. It is certain that internal variation will also be observed when these small birds are anatomically investigated, but their relationship may be ascertained when series have been studied. In the meanwhile colour externally is the best feature, and it is very possible will always remain the best.



H. Grönvold, del.

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CARTERORNIS LEUCOTIS.
(WHITE-EARED FLYCATCHER).

SYMPOSIACHRUS TRIVIRGATUS.
(SPECTACLED FLYCATCHER).

Order PASSERIFORMES.

No. 487.

Family MUSCICAPIDÆ.

SYMPOSIACHRUS TRIVIRGATUS.

SPECTACLED FLYCATCHER.

(PLATE 410.)

[*DRYMOPHILA TRIVIRGATA* Temminck and Laugier, Planch. Color. d'Ois., 70^e livr. (Vol. IV., pl. 418, fig. 1), Dec. 27th, 1826 : Timor. Extra-limital.]

MONARCHA GOULDII Gray, Proc. Zool. Soc. (Lond.), Oct. 1st, 1860, p. 352 : "Australia" = New South Wales.

Monarcha trivirgata Gould, Synops. Birds Austr., pt. II. [pl. 20], April 1st, 1837 ; *id.*, Birds Austr., pt. 33 (Vol. II., pl. 96), Dec. 1st, 1848 ; *id.*, Handb. Birds Austr., Vol. I., p. 263, 1865 ; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 51, 1876.

Monarcha gouldii Gray, Proc. Zool. Soc. (Lond.), 1860, p. 352 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., pp. 130, 131, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 157, 1903 ; Campbell and Barnard, Emu, Vol. XVII., p. 24, 1917.

Monarcha albiventris Gould, Proc. Zool. Soc. (Lond.), Oct. 1st, 1866, p. 217 : Cape York, Queensland ; *id.*, Birds Austr. Suppl., pl. 13, pt. 5, Aug. 1st, 1869 ; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 51, 1876 ; Ramsay, *ib.*, Vol. II., p. 182, 1878 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 158, 1903 ; Macgillivray, Emu, Vol. XIII., p. 169, 1914 ; *id.*, *ib.*, Vol. XVII., p. 199, 1918.

Piezorhynchus gouldi Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 419, 1879 ; *id.*, Rep. Zool. Coll. Alert, p. 15, 1884 ; Ramsay, Tab. List Austr. Birds, p. 6, 1888 ; Hall, Key Birds Austr., p. 20, 1899 ; Mathews, Handl. Birds Austral., p. 67, 1908.

Piezorhynchus medius Sharpe, Rep. Zool. Coll. Alert, p. 14 (pref. June 20th, 1884) : Port Molle, Queensland.

Piezorhynchus albiventris Sharpe, *ib.*, p. 15 ; Ramsay, Tab. List Austr. Birds, p. 6, 1888 ; Hall, Key Birds Austr., p. 20, 1899 ; Mathews, Handl. Birds Austral., p. 67, 1908 ; Barnard, Emu, Vol. XI., p. 26, 1911.

Monarcha trivirgata albiventris Mathews Nov. Zool., Vol. XVIII., p. 324, 1912.

Monarcha trivirgata gouldi Mathews, *ib.*

Symposiachrus trivirgatus albiventris Mathews, List Birds Austr., p. 191, 1913.

Symposiachrus trivirgatus gouldii Mathews, *ib.*

Symposiachrus trivirgatus stalkerii Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 59, April 7th, 1916 : Inkerman, Queensland.

DISTRIBUTION. Eastern Australia, from Cape York to New South Wales.

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Adult male. General colour of the upper-surface dark slate-grey including the top of the head, hind-neck, entire back, upper tail-coverts and wings; inner webs of flight-quills dark brown with paler margins; tail black, the three lateral feathers on each side tipped with white which increases in extent towards the outermost where it occupies about one-third the length of the feather; rictal bristles black; fore-part of head, sides of face, chin, and throat velvety-black; cheeks, sides of neck, fore-neck, breast, and sides of body orange-buff; middle of abdomen, vent and under tail-coverts white; thighs grey; axillaries and under wing-coverts pale buff inclining to white on the latter; under-surface of quills dark brown; lower aspect of tail blackish with white tips to the outer feathers; eyes brown, feet black, bill dark blue. Total length 162 mm.; culmen 11, wing 77, tail 70, tarsus 18. Figured. Collected at Inkerman Spring Ranges, Queensland, in September 1907.

Adult female. Crown of head, hind-neck, entire back, and wings dark slate-grey; flight-quills dark brown with whitish margins; tail black with a slight trace of obsolete cross-bars, and white tips to the three outer feathers; rictal bristles black; fore-part of head, sides of face, chin and throat velvety-black; cheeks, sides of neck, and fore-neck orange-buff; breast, abdomen, sides of body, under tail-coverts, axillaries, and under wing-coverts white; thighs grey; under-surface of flight-quills brown; lower aspect of tail blackish-brown with white tips to the outer feathers. Eyes black, feet blue-black, bill grey. Total length 138 mm.; wing 70, tail 62. Figured. Collected at the Cable Station, Cape York, North Queensland, on the 22nd of January, 1913.

Immature. "Resemble the adults, but have the head uniform with the back, the fore-head washed with rufous and the throat grey." (North.)

Nest. Cup-shaped. Composed of fine strips of bark, tied together with spider's web; on the outside decorated with cocoons and moss. Lined with black-coloured fine rootlets. Outside dimensions $2\frac{1}{2}$ to $3\frac{1}{2}$ inches by $2\frac{1}{2}$ to $2\frac{3}{4}$ deep. Inside 2 by $1\frac{3}{4}$ deep.

Eggs. Clutch, two. Dull white. Spotted (more on the larger end) with purple or reddish-brown spots. 21-22 mm. by 15-16.

Breeding-season. October to January.

LITTLE seems to have been written regarding the habits of this bird, though there is quite an appreciable amount of literature in connection with the supposed "species."

Mr. J. W. Mellor has written me: "I have noted this species in New South Wales in all the subtropical scrubs visited. I found it fairly plentiful in the Tweed River scrubs, and about Mt. Warning at the head-waters of this river, where it is always found in pairs. I also saw it in the Richmond and Clarence River scrubs and about Mount Lindsay in the Great Dividing Range between New South Wales and Queensland, and also in the Blackall Ranges and at Mount Tambourine in Queensland. It is a pretty little Flycatcher, and delights to dwell in the secluded bowers of the thickly-grown parts of the scrub; its call is a low and plaintive whistle; it is confined to the scrubs, where it flies with a noiseless and easy motion from twig to twig, and lives solely on insects, caterpillars, etc."

Macgillivray wrote: "The White-bellied Flycatcher (the northern form of *P. gouldi*) is fairly common at Cape York in a good season. It is always found in the scrub, feeding from low down to the upper branches of the vegetation. It

SPECTACLED FLYCATCHER.

also nests in the wet months of the summer. In a dry season, like that of 1911-12, very few nest." Later, of the Claudie River, he added: "Is a common bird in the scrub. Several nests were noted after the commencement of the wet season; these are usually placed within easy reach, the highest being 15 feet up. A small upright fork is usually chosen as a site for the cup-shaped nest, composed usually of fine bark and fibres well bound together with cobwebs. The eggs are invariably two in number. The newly-hatched young have the skin blue-black, with a trace of dark slaty down on the head, back, femoral and humeral tracts. The sprouting primaries also appear to be bluish-black, legs and feet slaty, bill black, eyes just opening, gape pale yellow. These were a few in the scrub on the Archer River."

At the time Gould prepared his "Synopsis" he figured the heads of three species of *Monarcha*, viz., *M. trivirgata*, *M. carinata* and *M. inornata*. The first species named he simply recorded from Australia, though it had been described from Timor.

In his "Handbook," published in 1865, he maintained this name, writing: "Although the *Monarcha trivirgata* has been known to naturalists for many years, it is still a scarce bird, very few specimens occurring in any of the numerous collections sent home from Australia, which is doubtless occasioned by its true habitat not having been yet discovered. The specimens seen have been procured in the Moreton Bay district of the east coast. All the examples that have come under my notice have been marked precisely alike, with the exception of one procured during the early part of Dr. Leichhardt's expedition from Moreton Bay to Port Essington, which differs in being destitute of the rufous tint on the flanks, and which may be a female. I can perceive little or no difference between Australian examples and specimens brought by Mr. Wallace from the islands of Batchian and Timor. In form and markings this species closely assimilates to the members of the genus *Arses*." Previously Gray had named the bird from New South Wales *M. gouldi*, and in 1866 Gould accepted this, while describing the Cape York form as a new species, *M. albiventris*, writing: "Distinguished by the unsullied whiteness of its axillaries, abdomen, and lower part of its flanks, by the black of the fore-head and throat being somewhat more extensive, and by the larger size of the white terminal portion of the outer tail-feathers." Sharpe, in the *Rep. Zool. Coll. 'Alert,'* 1884, p. 14, introduced a new species *Piezorhynchus medius* from Port Molle, having black upper tail-coverts like the Timor form, the typical *gouldi* having grey, writing: "It is certain that the white-flanked individuals (*P. albiventris* Gould) have the upper tail-coverts blackish, whereas in the rufous-flanked birds, *P. gouldi* Gray, the tail-coverts are grey."

In the *Tab. List Austr. Birds*, 1888, Notes and References opposite page 6,

THE BIRDS OF AUSTRALIA.

Ramsay wrote : “ *Piezorhynchus gouldii* Gray, and *P. albiventris* Gould. In my previous notes on these species I alluded to the opinion held by Mr. Sharpe that *P. gouldii* and *P. albiventris* were the same. I am glad to find that Mr. Sharpe has considerably modified this view in the *Voyage of the Alert*, pp. 14, 15, where, however, I think he has erred on the other side, in separating the specimens found at Port Molle as a distinct species under the name of *Piezorhynchus medius*, on account, as far as I can ascertain, of their black upper tail-coverts. Specimens before me from near Port Denison agree in every respect with *P. medius*, but among them are also others in which the upper tail-coverts vary from bluish-gray to black, this I find depends on the age and sex of the individual. Those from N.S. Wales are palest in the orange-rufous tint of the sides of the throat, and chest, while the birds from the Cardwell and Cairns districts farther north are deepest in tint ; the extent of white on the outer three tail-feathers also varies, and in one specimen from Port Denison, a fourth feather is tipped with white. I regret I did not see Mr. Sharpe’s correction sooner, but in any case, after examining a very large series from the Clarence River in N.S. Wales to Cape York in North Australia, I can only find two distinct species, *P. gouldii* Gray and *P. albiventris* Gould ; *P. medius* therefore becomes only a synonym of *P. gouldii* of Gray.”

Upon examination of many specimens I concluded that there were only two ill-defined subspecies, the “specific” characters of the above writers being inconstant and variable and difficult to circumscribe.

However, from the Rockingham Bay district specimens Campbell and Barnard concluded : “This interesting Flycatcher was always in evidence. It does not appear to be the *albiventris* of more northern habitat. Possibly it may be Sharpe’s *medius* from Port Molle, which Mathews states is synonymous with *albiventris*. Port Molle is a little below Bowen.”

I named the Inkerman, Queensland, form as differing in being lighter above and the under-surface much less buffish-red.

In view of Campbell’s note it seems difficult to determine how many subspecies are recognisable in Australia, especially in view of the restricted range. The variation appears to be inconstant, so that while even four subspecies may be later easily distinguished, I would suggest at the present time only the retention of the two I admitted in my “List,” viz. :

Symposiachrus trivirgatus albiventris (Gould).

North Queensland.

Symposiachrus trivirgatus gouldii Gray.

New South Wales ; South Queensland.

The extra-limital subspecies are just as difficult to define as are the Australian ones.

GENUS—CARTERORNIS.

CARTERORNIS Mathews, Austral Av. Rec., Vol. I,
pt. 5, p. 111, Dec. 24, 1912. Type (by original
designation) *Monarcha leucotis* Gould.

WHEN I named this genus I wrote thus: "Differs from *Piezorhynchus* in its weaker bill and feet and in its different wing formula; the third, fourth, fifth and sixth primaries are subequal and longest, the seventh longer than the second which is about twice the length of the first, the eighth subequal with second; from *Symposiachrus* in its longer, narrower bill and different wing formula."

Gould described the species under *Monarcha*, observing: "I have refrained from making the White-eared Flycatcher the type of a new genus until more information has reached us respecting it, and in the meantime have assigned it a situation with the other members of that form to which it seems to me to be most nearly allied."

CARTERORNIS LEUCOTIS.

WHITE-EARED FLYCATCHER.

(PLATE 410.)

MONARCHA LEUCOTIS Gould, in Jardine's Contr. Ornith., 1850, p. 105*: Cape York, Queensland.

Monarcha leucotis Gould, in Jardine's Contr. Ornith., 1850, p. 105*; *id.*, Proc. Zool. Soc. (Lond.), 1850, p. 201, 1851; *id.*, Birds Austr. Suppl., pl. 12, pt. 1., March 15th, 1851; *id.*, Handb. Birds Austr., Vol. I., p. 264, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878; Mathews, Nov. Zool., Vol. XVIII., p. 324, 1912; Campbell and Barnard, Emu, Vol. XVII., p. 25, 1917; Macgillivray, *ib.*, p. 200, 1918.

Piezorhynchus leucotis Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 423, 1879; Ramsay, Tab. List Austr. Birds, p. 6, 1888; Hall, Key Birds Austr., p. 20, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 132, 1901; Mathews, Handl. Birds Austral., p. 67, 1908; Macgillivray, Emu, Vol. XIII., p. 169, 1914; H. L. White, *ib.*, Vol. XV., p. 62, 1915.

Carterornis leucotis Mathews, List Birds Austr., p. 191, 1913; *id.*, Austral Av. Rec., Vol. II., p. 135, 1915.

Carterornis leucotis gracemeri Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 130, Jan. 28th, 1915: Gracemere, Queensland.

DISTRIBUTION. Queensland; New South Wales (?).

Adult male. General colour of the upper-surface black, including the head, back, wings, and tail; sides of the face also black with a mark in front and above the eye white, like the ear-coverts; an incomplete white collar on the hind-neck; the outer median and greater upper wing-coverts tipped with white, the inner ones of both series entirely white; outer webs of inner secondaries edged with white and inclining to white on the inner margins of the flight-quills, the apical portion of the primaries dark smoke-brown; upper tail-coverts white like the tips of the outer tail-feathers; rictal bristles uniform black; chin and throat white with black bases to the feathers; breast, upper-abdomen, and sides of the body ash-grey; thighs black; lower-abdomen and under tail-coverts white like the axillaries and under wing-coverts; under-surface of flight-quills dark brown with pale margins; lower aspect of tail blackish with pale shafts and white tips to the lateral feathers. Eyes dark brown, bill blue, tip black, feet and legs black. Total length 143 mm.; culmen 11, wing 72, tail 62, tarsus 19. Figured. Collected at Cairns, North Queensland, in August 1902.

Adult female. Crown of the head, hind-neck, and sides of the face black; lores, a small patch above the eye, and ear-coverts white like the sides of the neck; back, wings,

WHITE-EARED FLYCATCHER.

and tail blackish; median and greater upper wing-coverts tipped with white, the inner greater coverts entirely white, some of the inner secondaries narrowly edged with white; short upper tail-coverts white, the long ones blackish tipped with white; the three outer tail-feathers tipped with white—more extensively on the outermost; rictal bristles numerous; chin and throat white with black bases to the feathers like the middle of the abdomen, vent, under tail-coverts, axillaries, and under wing-coverts; breast and sides of body pale slate-grey; thighs blackish; under-surface of flight-quills dark brown with slightly paler margins; lower aspect of tail blackish with white tips to the three outer feathers. Eyes dark brown, bill bluish, tip black, feet black. Culmen 11 mm., wing 70. Figured. Collected on the Russell River, North Queensland, on the 14th of August, 1913.

Nest and Eggs. Not described.

MACGILLIVRAY has recorded: "The White-eared Flycatcher is a rare bird in the extreme north. Though the type came from Cape York, Mr. McLennan has only seen one specimen in that locality. He noted one on the Pascoe River and one again on the edge of the scrub on the Claudie."

Messrs. Campbell and Barnard wrote: "This black and white Flycatcher was of great interest to us, as its nest and eggs were, and are still, ornithological desiderata. We observed individual birds in several places in the scrub on the mainland (at Rockingham Bay, North Queensland) and on Goold Island, but were not successful in tracing a nest. These birds probably breed during October, when we took most of the other Flycatcher's nests. In habits these birds mostly resemble *M. carinata* in their manner of flitting about the topmost branches of the trees."

Gould had written: "It is a native of Cape York, and in all probability it ranges widely over the north coast." "Respecting this bird," says Mr. Macgillivray, "I regret to say I can afford you very little information. A specimen was obtained at Dunk Island, off the north-east coast of Australia, where it was shot during its flight from one tree to another; a second individual was afterwards procured at Cape York, which renders it probable that its range extends between these two places." Little else has been written about it as above noted, the later Macgillivray indicating that it is a rare bird and that Cape York seems its northern limit.

I differentiated the bird from Gracemere, Queensland, on account of its darker coloration and two subspecies can be still admitted.

Carterornis leucotis leucotis (Gould).

Cape York, Queensland, North.

Carterornis leucotis gracemeri Mathews.

South Queensland, New South Wales.

GENUS—MONARCHA.

MONARCHA Vigors and Horsfield, Trans. Linn.

Soc. (Lond.), Vol. XV., pt. I., p. 254, Feb. 17,

1827. (Type by monotypy) *M. carinata* =

Muscicapa melanopsis Vieillot.

Also spelt—

Monacha Swainson, Naturalists' Library (Jardine), Vol. X., Flycatchers, p. 140, 1838.

Monarches Hartlaub and Finsch, Proc. Zool. Soc. (Lond.), 1871, p. 28.

MEDIUM "Muscicapine" birds with stout bills, long wings, long square tail, strong legs and weak feet.

The bill is strong and heavy, not compressed or comparatively broad, but with distinct keel to culmen and sides curved; the under mandible deep and stout and not flattened; six strong rictal bristles developed. The tip is distinctly hooked.

The wing is long with the first primary short, less than half the second, while the fourth is longest, the third equal to the fifth, the sixth little less and the seventh equal to the second. The tail is long and square. The feet are thick and strongly scutellate, the feet small and comparatively weak.

The genus name *Monarcha* has been misused to cover many forms of apparent different evolution. As above noted, it was based on *M. carinata*, a grey bird with a black face and red abdomen. A series of birds varying from that species can be easily observed, and while the general coloration is retained structural differences may be seen in course of development. A more or less natural group can be circumscribed in this connection; but to be rejected may be noted some forms, such as the species known as *Monarcha axillaris* Salvadori. This is a little black bird with white axillaries (hence its name), a small *Monarcha*-like hooked bill with many strong rictal bristles. The wing is more rounded with the first primary longer, the third equal to the seventh, and the fourth, fifth and sixth subequal and longest. The tarsus is long and smooth, almost booted, and the feet small. The tail is very long with broad fantail feathers, and altogether recalling *Rhipidura*, save in the heavy bill. I now find that Ogilvie-Grant has determined *Rhipidura fallax* Ramsay as a synonym, and this fact should indicate its features. In order still further to draw attention to it, and suggesting that it may be

MONARCHA.

more closely related to *Rhipidura*, I propose for it the new generic name **PENEMONARCHA**, *Penemonarcha axillaris* (Salvadori).

Another group, known as *Monarcha chrysomela* (Garnot) also requires to be distinguished, the coloration alone (yellow) demanding the new generic name **MONARCHANAX**. However, the juvenile coloration, green with darker markings, compels admission that a different course has been adopted to arrive at similar structural items, such as the heavy *Monarcha*-like bill and the stout strongly scutellate feet, while the wing formula is not greatly dissimilar.

When a lumping policy is adopted a heterogeneous association can be quickly formed, and such is evident when *Monarcha* is used. It should be noted that Sharpe differentiated a majority of these species, placing them under *Piezorhynchus*, but still confusing diverse elements. It is obvious from a study of the plumage changes that several distinct groups should be differentiated, but, as noted under *Piezorhynchus*, confusion has been aggravated by the suppression of valid groups.

Order PASSERIFORMES.

No. 489.

Family MUSCICAPIDÆ.

MONARCHA MELANOPSIS.

BLACK-FACED FLYCATCHER.

(PLATE 411.)*

MUSCICAPA MELANOPSIS Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXI., p. 450, May 30th, 1818 : New South Wales.

Muscicapa melanopsis Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXI., p. 450, 1818.

Muscipeta carinata Swainson, Zool. Illustr., Series I., pl. 147, 1821 : New South Wales.

Monarcha carinata Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 255, Feb. 17th, 1827 : Thirsty Sound, South Queensland ; Gould, Synops. Birds Austr., pt. II. [pl. 20], 1837 ; *id.*, Birds Austr., pl. 25 (Vol. II., pl. 95), Dec. 1st, 1846 ; *id.*, Handb. Birds Austr., Vol. I., p. 262, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878 ; Macgillivray, Emu, Vol. XIII., p. 169, 1914 (N.Q.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 25, 1917 (N.Q.) ; Macgillivray, *ib.*, p. 200, 1918 (N.Q.).

Monarcha canescens Salvadori, Ann. Mus. Civ. Genov., Vol. VII., p. 991, 1876 : Cape York, Queensland ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 431, 1879 ; Ramsay, Tab. List Austr. Birds, p. 6, 1888 ; Hall, Key Birds Austr., p. 20, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 134, 1901 ; Mathews, Handl. Birds Austral., p. 67, 1908 ; Macgillivray, Emu, Vol. XIII., p. 169, 1914 (N.Q.) ; *id.*, *ib.*, Vol. XV., p. 36, 1915 (N.Q.) ; H. L. White, *ib.*, p. 62, 1915 ; Macgillivray, *ib.*, Vol. XVII., p. 200, 1918 (N.Q.)

Monarcha melanopsis Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 430, 1879 ; Ramsay, Tab. List Austr. Birds, p. 6, 1888 ; Hall, Key Birds Austr., p. 20, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 132, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 154, 1903 ; Mathews, Handl. Birds Austral., p. 67, 1908.

Monarcha melanopsis melanopsis Mathews, Nov. Zool., Vol. XVIII., p. 325, 1912 ; *id.*, List Birds Austr., p. 192, 1913.

Monarcha melanopsis canescens Mathews, Nov. Zool., Vol. XVIII., p. 325, 1912 ; *id.*, List Birds Austr., p. 192, 1913.

Monarcha kurandi Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 130, Jan. 28th, 1915 : Cape York, North Queensland.

* The Plate is lettered *M. canescens* and *melanopsis*.



H. Grönvold. del.

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MONARCHA CANESCENS.
(PEARLY FLYCATCHER).

MONARCHA MELANOPSIS.
(BLACK FACED FLYCATCHER).

BLACK-FACED FLYCATCHER.

Monarcha melanopsis pallida Mathews, *ib.*, Vol. III., pt. 3, p. 60, April 7th, 1916 : Cape York, N. Queensland.

Monarcha canescens claudia Mathews, *ib.*, Vol. III., pt. 4, p. 71, July 21st, 1917 : Claudie River, N. Queensland.

DISTRIBUTION. North Queensland, southwards from Cape York to New South Wales.

Adult female. General colour of the upper-surface slate-grey including the hinder crown, entire back, wings, upper tail-coverts and tail ; rump chestnut ; fore-part of head, throat, and rictal bristles deep black ; inner webs of flight-quills dark brown with pale margins ; sides of face, short feathers round the eye and a band across the breast pale slate-grey ; breast, abdomen, sides of body, and under tail-coverts pale chestnut ; axillaries and under wing-coverts similar but rather paler ; under-surface of flight-quills greyish-brown somewhat paler on the margins ; lower aspect of tail also greyish-brown with white shafts to the feathers. Eyes black ; feet and bill grey-blue. Total length 165 mm. ; culmen 17, wing 89, tail 75, tarsus 20. Figured. Collected at Cape York on the 30th of March, 1913.

Adult male. Similar to the adult female.

Immature. "Resemble the adults, but are destitute of the narrow ring of black feathers round the eye and the face and throat are grey like the head and neck." (North.)

Nest. Cup-shaped. Composed externally of green moss, lined with fine rootlets. Outside dimensions 3 to 3½ inches by 4 to 5 deep. Inside 2 by 2½ deep.

Eggs. Clutch, two or three. White, covered, sometimes more at the larger end, with reddish spots and some of lavender. 24 to 25 mm. by 16-17.

Breeding-season. November to January.

Adult female. Crown of head, sides of face, breast, sides of neck, entire back, upper tail-coverts, scapulars, and inner median and greater upper wing-coverts pale slate-grey ; base of fore-head, throat, rictal bristles and short feathers round the eye deep black ; upper wing-coverts black, some of the median series fringed with grey like the bastard-wing and primary-coverts ; flight-quills blackish with whitish margins to the inner webs ; tail also blackish ; abdomen, under wing-coverts and axillaries chestnut ; outer edge of wing below black ; under-surface of flight-quills dark brown somewhat paler on the inner margins ; lower aspect of tail also dark brown with white shafts to the feathers. Eyes dark brown, bill horn colour with blackish tip ; feet horn colour. Total length 170 mm. ; culmen 15, wing 82, tail 66, tarsus 19. Figured. Collected at Cape York, North Queensland, on the 27th of February, 1911, and is the type of *M. c. kurandi*.

Adult male. Similar to female.

Nest. "Goblet-" shaped. Composed of fine strips and flakes of paper bark, bound together by cobwebs. Lined with vegetable hair. Outside measurements 2½ inches by 4¾ deep. Inside 2 deep." (Macgillivray.)

Eggs. "Clutch, three, white, dotted all over with small reddish-brown irregular-shaped spots with a few underlying pale purplish ones. The spots are sparsely distributed towards the small end, but form a distinct zone at the larger. 23-24 mm. by 16-18 in. (*ib.*)

Breeding-season. January.

SWAINSON figured this species in the *Zoological Illustrations*, and a few years later Vigors and Horsfield introduced a new generic name for it; but,

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unfortunately, a few years earlier the French ornithologist had described the species from specimens brought back by the French explorers. There was no confusion in this case until Salvadori proposed the Cape York bird as a new species. As field ornithologists seemed enabled to distinguish two species I, at first lumping, also decided that there might be two, but this view led to so much trouble that I have been compelled to conclude again that there is only one. I here give the history of my trials, and do not consider the matter absolutely settled, but hope it is.

Thus Gould wrote : " This is a migratory bird in New South Wales, arriving in spring and departing again in March and April, the Australian autumn. It gives a decided preference to thick brushy forests, such as those at Illawarra and other similar districts extending from the Hunter to Moreton Bay. It is also equally abundant in the thick brushes which clothe the sloping mountains of the interior. During the spring or pairing time it becomes very animated, and is continually flying about and beneath the branches of the trees ; it does not capture insects, like the true Flycatchers, on the wing, but obtains them while hopping about from branch to branch, after the manner of the *Pachycephalæ*. It has rather a loud whistling note, which being often repeated tends considerably to enliven the woods in which it dwells. The *Monarcha carinata* does not inhabit Tasmania or South Australia ; its great nursery is evidently the south-eastern portion of the country."

Macgillivray has written : " Though rare at Cape York, the Pearly Flycatcher is quite common on the Claudie. Found both in the open forest and scrub, we frequently watched it searching the trees over and about our camp for insect life. On the 8th December one of these birds came into our tent on Raine Island, but went on, and was soon lost sight of amongst the host of sea-birds." He thus differentiated the two names as referring to distinct species, also writing : " Mr. McLennan noted the Black-faced Flycatcher on the Claudie River on the 1st October, but there was none there when we arrived. He notes : ' They seem to come from the south in February and remain for about two months, when they are numerous ; they then disappear.' "

From Rockingham Bay, North Queensland, Messrs. Campbell and Barnard wrote : " These Black-faced Flycatchers were not so frequently observed as their Spectacled brethren. They were smaller (one-quarter of an inch) in the wing and slightly richer in colouring than, say, New South Wales birds, otherwise not different. We do not think that they are the Cape York bird (*canescens*) with plumage of pearly appearance. These fine Flycatchers at first appeared singly, but a little later were seen in flocks of eight or ten, evidently migrating from northward. They afterwards appeared to scatter and were observed building in October on the table-land."

BLACK-FACED FLYCATCHER.

Salvadori, receiving specimens from Cape York, Queensland, described a new species as *Monarcha canescens*. This was admitted as a valid species, on Salvadori's high authority, and all specimens from Cape York were examined for that species. Generally it was regarded as non-existent in the collections received, all the specimens being regarded as "*carinata*" or "*melanopsis*." When I made up my "Reference List" I concluded that the specimen named by Salvadori was simply an aberration, and therefore used his name as the subspecific one for the Cape York form of the southern "*melanopsis*."

I then described a species as *Monarcha kurandi*, as follows: "General colour above pearl-grey; primaries and secondaries black; tail brown; round the bill black, which colour extends under the throat; lower throat grey, rest of under-surface chestnut." Noting that birds from Cape York varied, I separated two species living together, referring to one as *M. melanopsis*, the other as *M. canescens*. Field ornithologists have distinguished these, as will be seen from the field notes above. The birds from the Claudie River which Macgillivray regarded as *M. canescens*, I named as a distinct subspecies of that species, and then named a Cape York form of *M. melanopsis*.

I have criticised these birds again and again, and am inclined to the conclusion that the differences observed are due to plumage and seasonal changes, and that only *one* species occurs. Some birds as above have black primaries and others have hoary-grey edges; while some heads are grey, others are pale pearly-grey. The variation, however, appears to be individual and not geographic nor specific, and so, for guidance to the field ornithologist, I am suppressing my own named forms and only admitting two subspecies, even as in my "List":—

Monarcha melanopsis melanopsis (Vieillot).

New South Wales, South Queensland.

Monarcha melanopsis canescens (Salvadori).

North Queensland.

As eggs are present in many Australian collections of the two "species," my action will produce criticism, and I hope that facts will be adduced in support by my critics, as only by means of facts will the truth be achieved.

GENUS—PTEROPODOCYS.

PTEROPODOCYS Gould, Birds Austr., pt. xxv.

(Vol. II., pl. 59), 1st December, 1846.

Type (by monotypy) *Graucalus phasianellus* Gould
= *Ceblepyris maxima* Rüppell.

LARGE Campophagine birds with small heads, small bills, long pointed wings, very long, peculiar forked tails and long, stout legs and feet.

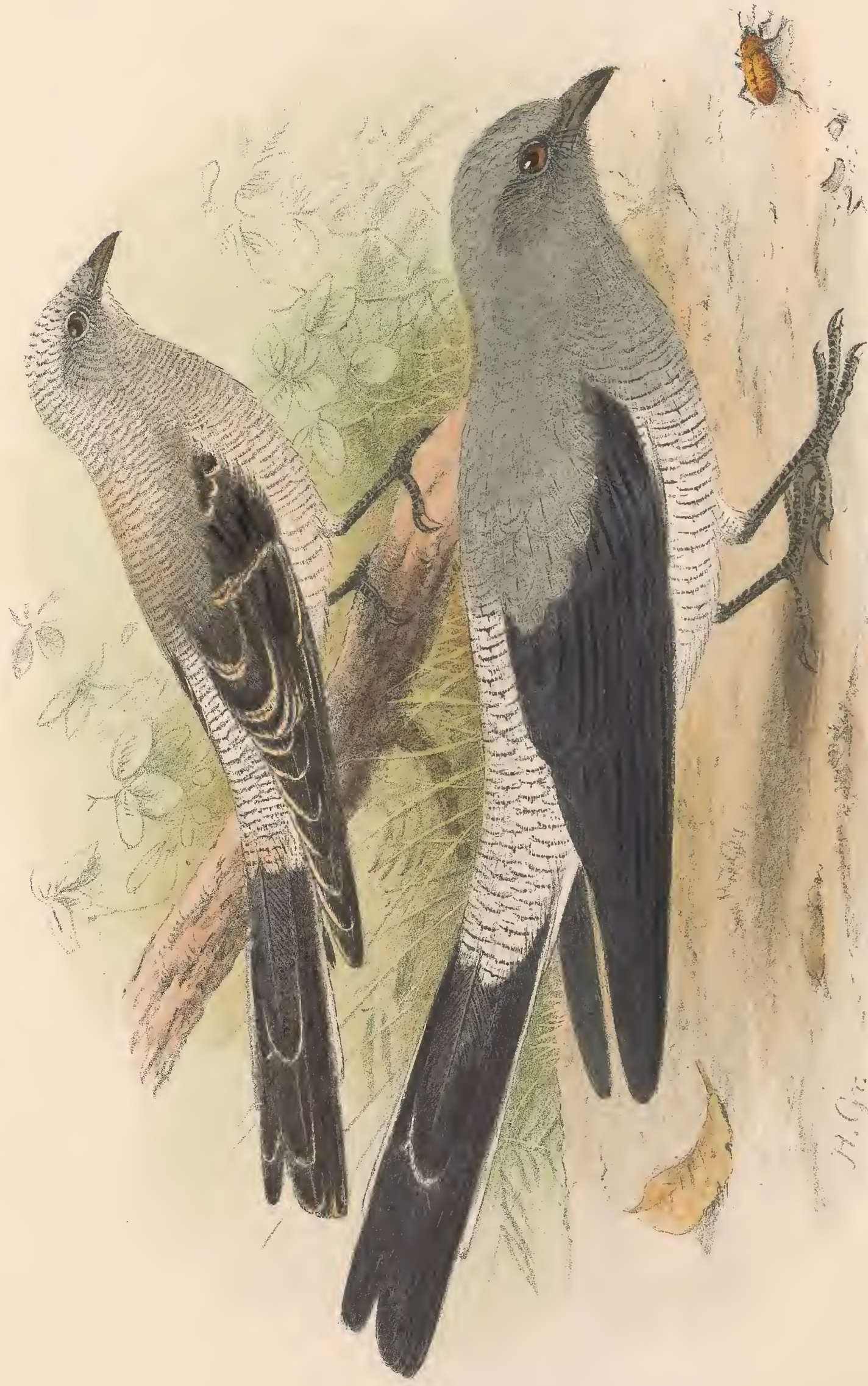
The bill is short and about the same length as the head, which is comparatively small; the culmen is curved, the tip notched but only a little decurved, the edge a little sinuate; the laterals expand basally and the tip is somewhat attenuate, forming a lengthened triangular bill, the depth at the base being nearly half the length of the bill; the under mandible is similarly basally expanded, rather shallow, the interramal space fully feathered, the gonys half the length of the mandible, the tip acute; nostrils placed in groove at base of culmen and hidden by encroachment of frontal feathering; rictal bristles short.

The wings are very long, the feathers rather narrow; the third, fourth and fifth longest, the fourth generally a little exceeding the other pair; the second a little less, and a little longer than the sixth; the first short and narrow about half the length of the second, and about equal to the secondaries.

The tail is composed of twelve feathers and is very long and peculiarly forked, as the outer feather is rather short and the next two inside are the longest, the fourth from the outside a little shorter, the fifth shorter and longer than the outside feather, but the two middle feathers are shorter than the outer and little more than half the length of the longest feathers; the tail-coverts, both upper and under, are long, but do not quite reach to the middle tail-feathers.

The feet are long and strong, the outer side of the tarsus showing six broad valid scutes, the back being bilaminate with a few small scutes at heel; the toes show strong scutation above; the outer toe is not much less than the middle one and a little longer than the inner; the hind-toe is almost as long as the middle one, the hind claw long; the anterior claws smaller.

The general coloration is grey; the rump, upper tail-coverts and lower breast and abdomen whitish with grey small cross-bars; wings and tail black.



H. Grönvold, del

Witherby & Co

PTEROPODOCYS NAXIMA
(EASTERN GROUND CUCKOO - SHRIKE).

Order PASSERIFORMES.

Family CAMPOPHAGIDÆ.

No. 490.

PTEROPODOCYS MAXIMA.

GROUND CUCKOO-SHRIKE.

(PLATE 412.)

CEBLEPYRIS MAXIMA Rüppell, Mus. Senckenb., Vol. III., pt. i., p. 28, 1839: "New Holland" = New South Wales.

Ceblepyris maxima Rüppell, Mus. Senckenb., Vol. III., pt. i., p. 28, 1839.

Graucalus phasianellus Gould, Proc. Zool. Soc. (Lond.), 1839, p. 142, March, 1840: Liverpool Plains, New South Wales.

Pteropodocys phasianella Gould, Birds Austr., pt. xxv. (Vol. II., pl. 59), 1 Dec., 1846; Bonaparte, Consp. Gen. Av., Vol. I., p. 355, 1851; Gould, Handb. Birds Austr., Vol. I., p. 199, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 22, 1879; Ramsay, List Austr. Birds, p. 5, 1888; Hall, Key Birds Austr., p. 11, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 95, 1901; North, Austr. Mus. Spec. Cat., No. 1, pt. 2, p. 110, 1902; Hall, Emu, Vol. I., p. 106, 1902 (N.W.A.); Berney, *ib.*, Vol. V., p. 20, 1905 (N.Q.); Mathews, Handl. Birds Austral., p. 67, 1908; Crossmann, Emu, Vol. IX., p. 87, 1909 (S.W.A.); Whitlock, *ib.*, p. 194, 1910 (M.-W.A.); Jackson, *ib.*, Vol. XII., p. 93, pl. xiv., 1912; Macgillivray, *ib.*, Vol. XIII., p. 169, 1914 (N.Q.); C. F. Cole, *ib.*, Vol. XV., p. 184, 1916 (Vic.).

Campephaga phasianellus Gray, Genera Birds, Vol. I., p. 283, 1846.

Pteropodocys maxima Ramsay, Proc. Linn. Soc., N.S.W., Vol. II., p. 181, 1878.

Pteropodocys maxima maxima Mathews, Nov. Zool., Vol. XVIII., p. 325, 1912; *id.*, List Birds Austr., p. 192, 1913.

Pteropodocys maxima neglecta Mathews, Nov. Zool., Vol. XVIII., p. 325, Jan. 31, 1912: Broome Hill, South-west Australia; *id.*, List Birds Austr., p. 192, 1913.

Pteropodocys maxima pallida Mathews, Nov. Zool., Vol. XVIII., p. 325, Jan. 31, 1912: Alexandra, Northern Territory; *id.*, List Birds Austr., p. 192, 1913; Söderberg, Kungl. Svenska Vet. Handl., Band LII., p. 88, 1918.

DISTRIBUTION. Australia. Not Tasmania.

Adult female. Crown of head, mantle, upper back, and scapulars pale slate-grey with somewhat darker shaft-lines to the feathers; lower back, rump, and upper tail-coverts greyish-white, finely mottled and narrowly barred with black; lesser upper wing-coverts similar to the back but rather darker, some of the outer ones edged only with grey; median and greater series, bastard-wing, primary-coverts, and

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flight-quills black ; paler on the inner webs of the last which are broadly margined with white ; edge of wing white barred and irregularly marked with black ; tail black with more or less white at the base and also at the tips of some of the feathers and along the outer edge of the outermost feather on each side ; lores, feathers surrounding the eye, and ear-coverts darker than the back ; throat and fore-neck slate-grey, becoming paler on the breast where the feathers have dark shaft-lines, narrow blackish bars, and whitish fringes ; abdomen, sides of the body, flanks and thighs white with narrow blackish cross-bars ; vent and under tail-coverts white ; axillaries and under wing-coverts also white, irregularly marked with blackish ; inner webs of flight-quills below pearly-white, remainder of quill-lining greyish-brown ; lower aspect of tail white at the base and along the outer web and tip of the outermost feather on each side ; remainder of tail blackish. Bill and feet black ; eyes dark-brown. Total length 365 mm. ; culmen 17, wing 219, tail 190, tarsus 35. Figured. Collected at Moree, New South Wales, in October 1907. The extraordinarily shaped tail is most marked.

Adult male. Similar to the adult female.

Immature female. Crown of head, hind-neck, scapulars and upper back pale ash-grey or cream-white with narrow blackish cross-bars to the feathers ; lower back, rump, upper tail-coverts, and base of tail white, or cream-white, barred or mottled with black or smoke-brown ; lesser upper wing-coverts slate-grey ; median and greater series blackish or smoke-brown with smoke-white tips to the feathers ; bastard-wing, primary-coverts, and flight-quills black margined with white or buffy-white narrowly on the outer webs but much more broadly on the inner ones towards the base ; tail blackish on the apical portion with white tips and white fringes to some of the feathers, the outermost feather on each side for the greater portion white with smoke-brown, or blackish mottlings ; chin white ; throat and sides of face grey with more or less white intermixed and black hair-like tips to the feathers ; upper-breast also pale grey with narrow dark brown bars and whitish fringes to the feathers becoming white on the abdomen and sides of body, where the dark cross-bars are rather more pronounced ; lower flanks, vent, and under tail-coverts white like the axillaries and under wing-coverts ; inner edges of flight-quills below pearl-white ; remainder of quill lining greyish-brown. Lower aspect of tail white at the base and for the greater portion of the outer feather on each side and the remainder blackish. Figured. Collected at Moree, New South Wales, in November 1898.

Nestling female (in partial first plumage). Crown of head, lores, sides of face, nape, hind-neck, and sides of neck, pale grey with a tinge of isabelline and blackish-brown cross-bars to the feathers ; entire back, rump, upper tail-coverts, and lesser upper wing-coverts greyish-white tinged with isabelline and dark brown cross-bars to the feathers ; median upper wing-coverts dark brown barred and tipped with ochreous ; greater upper wing-coverts, bastard-wing, primary-coverts and flight-quills inclining to black with white or smoky-white margins to the feathers ; edge of wing whitish narrowly barred with dark brown ; tail blackish with pale tips to the feathers ; throat, breast, abdomen, sides of body, and under tail-coverts greyish-white or cream-white with dark brown cross-bars ; lower abdomen and vent covered with white down ; under-surface of flight-quills slate-brown ; lower aspect of tail blackish-brown. Eyes hazel ; feet and legs purplish-flesh ; bill horn-colour ; mouth orange. Collected at Broome Hill, South-west Australia, on the 8th of October, 1910.

Nest. Saucer shaped. Composed of grass, etc., held together by cobwebs and lined with fine grass. Outside dimensions 5 by 2 inches deep. Inside 3 by 1 deep.

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Eggs. "Three. Typical eggs are of a dull asparagus-green ground-colour, which is more or less obscured with numerous indistinct fleecy markings of olive-brown. 33-34 mm. by 22-24." (North.)

Breeding-season. August to December.

SIMULTANEOUSLY described by Gould and Rüppell, the name given by the latter author has priority of publication, and must be accepted.

Gould's notes are here quoted: "The rarity of this species in our collections is sufficient evidence that it is a bird inhabiting the interior of the country, and that its native localities have been seldom visited by the explorer; hence it was a source of no ordinary gratification to me when I first encountered it on the plains bordering the River Namoi in New South Wales, and perceived that no very lengthened study of its habits and mode of life was requisite to ascertain that its structure is as beautifully adapted for terrestrial progression and for a residence on the ground, as the structure of the *Graucali* fits them to inhabit the branches of the trees; more beautiful modifications of form, in fact, can scarcely be seen than occur among the members of this group, which now comprehends a considerable number of species; the present bird, however, is the only terrestrial one that has yet come under my notice, either from Australia or the great nursery of these birds—India and the Indian islands. Plains and open glades skirted by belts of high trees are the localities in which I generally met with this bird, either in pairs or small parties of from three to six or eight in number. Its actions are very animated; at the same time it is cautious and shy. Its powers of progression on the ground are considerable; when disturbed it flies across the plain to the belts of lofty trees, when the white mark on the rump shows very conspicuously, and may be seen at a considerable distance. Its range extends over the whole of the interior of Southern Australia from east to west; how far it proceeds northwards has not yet been ascertained. Of its nidification I regret to say nothing is at present known. The sexes exhibit no external differences."

Macgillivray has written: "Very plentiful throughout the Gulf country, where in parties of from three to six they may often be seen feeding on the ground. The flight is undulating, like that of *Graucalus melanops*."

Captain S. A. White has written me: "I have never seen this bird really plentiful anywhere, only small parties of ten to a dozen and as a rule they are very shy. As far as South Australia is concerned, the interior seems to be their home. Renmark is the farthest south I have ever seen them, and the more southerly birds seem much darker than those found in the interior. Their remarkable call always attracts one and makes known their presence."

Mr. Sandland wrote me: "First seen about Balah, South Australia, in 1908, when I took nest with two eggs early in September. I had not seen

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the birds in this district previously and Dr. Morgan states this locality was not recorded. The nest was built in leaning fork of sandalwood tree and was composed of cobwebs and blue bush and was only discovered by seeing the bird beating a crow away from the tree."

Mr. Thos. P. Austin's notes read: "A permanent resident, but by no means numerous (at Cobbora, New South Wales), generally met with feeding upon the ground in open country, where it is difficult to approach them for a close inspection; when disturbed, they usually only take a short flight of about a quarter of a mile, and settle on the ground again, but when found in trees it is not so shy, and will often permit an intruder to walk beneath. It is nearly always to be seen in flocks of five (probably a pair of adult birds, and their last season's young) but once a flock of eight flew over my house, this being the most I have ever seen together. Very rarely have I noticed them in thick timber: they prefer the open forests, ring-barked country, and small plains. It has a peculiar plaintive note, usually uttered while flying, but they also have quite a different note, which I have only heard just before they commence nest building, which is a more prolonged harsh cry. While in flight they spread their forked tails. Once they take up their quarters in any particular locality, they often remain thereabout for years; sometimes departing for a few months after the breeding-season is finished, but usually returning to rear another family the next season. Fourteen years ago I noticed a pair nesting just outside my garden, and I took the eggs, but the female laid again in the same nest and they reared their young. With a few exceptions, I have seen them nesting about this spot every year since, and the birds are about there now. They only have one brood each season, and the young will often remain with their parents for more than twelve months. If the young birds do not breed in their first season, they usually help the old birds in nest building and the feeding of the new family, but I am unable to say if they assist in the task of incubation. During the spring of 1910 the five birds built a new nest in exactly the same fork as they had their nest the previous season, and when this was completed, and the eggs laid, the three young birds took possession of an old nest of a *Grallina picata* in the neighbouring tree and laid three eggs. On November 5th, 1908, while driving beneath a box tree, about ten miles from here, five of these birds flew out, and upon looking up I saw two of their nests, within a few feet of each other on the same branch, both containing young birds. They mostly start nest building towards the end of August, although I have taken eggs as late as December 15th; but in this case I had robbed an earlier nest belonging to this pair of birds. The clutch of eggs is nearly always three. I have never seen a nest containing more. The nests are usually placed in a horizontal fork of a rough-barked

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living tree, and they vary very considerably according to the material available, some nests being simply a low circular rim of bits of dry grass stems bound together and on to the branch with cobwebs, while others are more substantially constructed and stand up quite four inches in height, and are mostly composed of wool from dead sheep, with an addition of a certain species of plant stems, which, owing to having a tiny prickly seed pod, binds it all together. Sometimes there is an addition of a few feathers."

Mr. Tom Carter has given me the following long note: "The Ground Cuckoo-Shrike is locally distributed in the lightly-timbered districts that extend inland east of the heavy forest country of the extreme south-west. They are not very common and are somewhat erratic in their movements, as sometimes several months would pass without any being seen about Broome Hill, and they were much more abundant some years than they were others. The following notes are from my Broome Hill Journal: "Very few seen after the end of August, 1906. July 5, 1908: Six birds noted, the first seen for some months. June 23, 1910: Saw three at Broome Hill, the first since March. July 5, 1911: First birds seen this year; very few that year. Aug. 7, 1912: First seen; very scarce in 1912. The birds feed mostly on the ground, and walk about in a very brisk way. When not feeding they frequently go about in small parties. June 23, 1906: Party of eight seen. For some weeks a party of seven was seen very regularly about sundown, flying in a northerly direction over my house evidently going to roost together. March 16, 1910: Saw twelve feeding together on sand plain near Cranbrook, the largest number noted in a mob. This species seems to be extending its range (or else settlers are becoming more observant of birds). Probably the real reason is increased settlement on the land and clearing of the timber. When driving from Albany in a northerly direction towards the Stirling Ranges in March 1910 an observant settler told me that Ground Cuckoo-Shrikes had been first noted at his farm (30 miles north of Albany) two years previously. He had never seen the birds before. Dec. 12, 1911: When 20 miles west of Mount Barker (50 miles N.W. of Albany) a pair of these birds were pointed out to me as being strangers and never seen there previously. I was taken out to identify them, by my host, another observant farmer. The breeding-season about Broome Hill is in September. The nests are very shallow and flat and resemble those of *Graucalus novæhollandiæ* in being placed on the fork of a horizontal limb, and therefore difficult to see from below. Sept. 21, 1910: After some time spent in watching a pair of these birds, their nest was found on the fork of a horizontal limb, about thirty feet from the ground, of a York gum. It was practically invisible when standing below it. The nesting material consisted of fine grass, roots, weeds, and a little moss, lichen, and sheep's wool

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intermingled in a casual sort of way. The nest was not attached to the limb, just built on it, and was very flat in shape, not more than two inches in depth, perpendicular measurement. It was getting dusk when I first located the site of nest by seeing the parent birds fly to it, and while standing below trying to see the nest itself with my binoculars, I became aware that one of them was perched on a straight dead branch immediately above the nest. The bird appeared 'stretched' out to its utmost length, and held its beak in line pointing upwards, so as to resemble a part of the dead branch, to such an extent that I very nearly overlooked it. Next day, by means of an impromptu ladder, the nest was examined and found to contain two young birds, about a week old, one much larger than the other. The adult birds fluttered about above me and in the neighbouring trees, making a great noise and fuss, with ruffled feathers. On Oct. 5 the two young birds were still in nest. Another nest containing two eggs was found Sept. 12, 1912. Fledged young observed Nov. 3, 1907. This species was never observed by me in the Gascoyne or North-West Cape districts, but was seen at Kellerberin, where it was considered a rare bird by Mr. Bruce W. Leake."

Mr. Edwin Ashby writes: "The only time I have seen this bird was at Callion, West Australia. They are, I think, only casual visitors to that locality. Their strange loud cries as they were flying at a considerable height called my attention to them. There was only a small flock which settled in the trees, and not once while I was observing them did they settle on the ground."

Berney has written regarding these birds in the Richmond district, North Queensland: "This species is with us all the year round, but the numbers are certainly less during the winter months. They have a soft, liquid note, and are generally to be seen in small parties of three or four up to six and eight. I have found a nest with three young on 8th October, and on 11th and 15th November I saw nests with the birds sitting."

C. F. Cole has some good notes as follows: "My attention was attracted by hearing a strange muffled sound like 'Woof, woof,' which seemed to rise from the ground close to the butt of a eucalypt, some 45 feet high. I listened intently and searched the ground, to find the cause of this, now, oft-repeated muffled 'Woof, woof,' unfamiliar to me in the bush, but failed to find anything. Standing close to the bole of the sapling, I began to search the leafy boughs above in the hope of elucidating the mystery. My suspicion being aroused that the sounds might be ventriloquial in nature, and daylight fast disappearing, my son and self made a close scrutiny of the tree-top, with the result that we saw, perched right at the top of the sapling, upon a small horizontal bough, three greyish-coloured birds, touching one another, and

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facing all one way, a habit characteristic of birds of the *Artamus* and *Sittella* genera. When I threw up a stick they took flight, and uttered sharp and rather sweet notes whilst upon the wing. The first portion of their flight was somewhat quick and rollicking, broken every now and again with a little volplaning. While volplaning the wings were kept in a downward position, somewhat like the letter V reversed, only extended thus Λ . This part of their flight resembled that of the Ground Parrot (*Pezoporus terrestris*) or Stubble Quail (*Coturnix pectoralis*) when about to alight. The volplaning, besides giving a peculiar effect to their flight, was most interesting to watch. On throwing another stick, similar notes and flights were repeated. The birds returned and took up their previous attitude upon the same branch in the same spot. A third time they were put to flight, with the same result. Finding that the birds intended camping for the night upon this particular branch, I returned at midnight, and having a suitable moon for 'moonning' them, secured two of the birds for scientific purposes. Upon handling them I found that they were the Ground Cuckoo-Shrike (*Pteropodocys phasianella*), male and female—rare visitors and splendid specimens of their kind. As in other species belonging to this family, the feathers readily leave the body."

Mr. J. P. Rogers wrote me: "On Jegurra Creek on the 11th July, 1911, at Roebuck Downs, 40 miles south of the Fitzroy, several Ground Cuckoo-Shrikes were seen feeding on a small grassy flat, the most being seen at Mungi, where there were several small flocks, but it was noted that these birds were very wild. On my return to Derby I saw none after leaving Roebuck Downs. These birds are rare and sparingly distributed over Kimberley, but I have seen them near Derby and at various points along the Fitzroy."

A very important discovery may be here recorded, as this is the first opportunity in connection since it was made. It will be more fully detailed elsewhere, but this is the place where it should also be mentioned. When Gould described this species he added: "From the collection of Mr. Coxen," and it has been commonly accepted for some years that the types of Gould's species were in Philadelphia, and in the *Austral Avian Record*, Vol. I., pts. 6 and 7, published on Feb. 28th, 1913, will be found: "A List of the Species of Australian Birds described by John Gould, with the location of the type Specimens, by Witmer Stone, in conjunction with Gregory M. Mathews." Therein is written: "The details of the sale of Gould's Collection of Australian birds to Dr. Wilson are set forth in the late Dr. Bowdler Sharpe's Analytical Index to the Works of John Gould, London, 1893. . . . The specimens, apparently all skins, were sent to Verreaux Brothers, in Paris, to be mounted, . . . Verreaux prepared a manuscript-catalogue of the collection based, as some memoranda show, on an original catalogue of Gould's, which was apparently

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never sent over to America. The information contained in this catalogue is transcribed on the bottom of the stands, and consists of the number, name, sex and locality of each specimen, with the addition of the legend: 'Type, Gould, *Birds of Australia*'—every bird being so marked regardless of whether it was the type of the species or not. . . . While most of Gould's Australian types are in the collection of the Philadelphia Academy, it should be borne in mind that some species were described from material that was never in his possession; a few other types were never sent over, better specimens, apparently, having been substituted; while types of species described after the date of the Wilson purchase in 1847 are usually to be found in the British Museum, which secured Gould's later Australian material."

In that essay, upon these premises, Stone fixed upon the most likely specimen existing in the Philadelphia collection as the type and this was so regarded. That such may not be correct is certain from the following account.

In the Introduction to the *List of the Specimens of Birds in the Collection of the British Museum*, Second Edition, Part I., Accipitres, 1848, John Edward Gray wrote: "The British Museum is fortunate in having received a large portion of its species (either in presents, or by way of exchange or purchase) from the several authors both in this country and abroad by whom the species to which they belong were originally described, or from the collections in which they first received their names. Thus, among the collections which have been received as presents, those presented by:

"*Capt. William Chambers, R.N.*, as the types of the species from North-west Australia, described in Mr. Gould's '*Birds of Australia*.'

"*The Earl of Derby, Lieut.-Colonel Sir Thomas Mitchell, His Excell. Capt. George Grey, Capt. Sturt, and Mr. Jukes*, as the types of species described by Mr. Gould in his '*Birds of Australia*.'

"Amongst the specimens or collections which have been procured by purchase or exchange, the following may be specially indicated, viz., those from *Mr. Gould's Collection*, as the originals of the species described by that author in the '*Proceedings of the Zoological Society*,' and figured in the '*Birds of Australia*.'"

Such definite statements demanded attention and it was quickly seen that these were true, as under the species frequently the specimens were recognisable from the data above given. Confirmation was obtained by reference to the written account of the History of the Collections in the British Museum (Natural History) compiled by Sharpe. Sharpe was unaware of or ignored the statements above quoted, for in Vol. II., p. 246, is written under the year date 1837: "John Gould presented 172 specimens of birds to the Museum and 111 more were purchased from him. They were from

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various localities, but included a few Australian species, showing that even at this early date, he was receiving specimens from some one in that continent."

Consequently the only possible conclusion is that *many, if not a large majority, of the types of the species of birds described by Gould from Australia previous to 1847 are in THE BRITISH MUSEUM, and not at Philadelphia*. A complete revision, which is now being undertaken, of the location of the Gouldian type species will give the exact number. This explains the action of the Trustees of the British Museum in refusing the purchase of the Gouldian Bird Collection. Having received by gift and purchase nearly all the typical specimens of the birds of Australia they had no alternative but refusal to an offer to purchase a duplicate series proposed as originals. This also explains Gould's later action in allowing the British Museum to acquire the later received and described species, as upon reflection he recognised the justice of their refusal. It is possible that the correspondence between the British Museum and Gould will make this clear.

In connection with the present species Gould's name proved to be later than Rüppell's so that it is a synonym, but apparently the species Gould described was received from Coxen, before he met with it himself. It is doubtful whether the specimen in Philadelphia accepted as type is the one received from Coxen, as most probably Gould would substitute one of the specimens he himself later collected on sentimental grounds; while very likely his own birds would be better prepared, and be more pleasing objects, as well as more easy to portray.

There is very little known regarding the variation in this species and the matter stands as determined by myself in 1912 when I recognised three subspecies as follows:

Pteropodocys maxima maxima (Rüppell).

Eastern Australia from South Queensland to South Australia.

Pteropodocys maxima neglecta Mathews.

South-west Australia.

A darker race differing "in its darker coloration above and below."

Pteropodocys maxima pallida Mathews.

Northern Australia from Alexandra, Northern Territory to North-western Australia.

A paler race differing "in its much paler coloration above and below."

GENUS—G R A U C A L U S .

GRAUCALUS Cuvier, Le Règne Animal, Vol. I.,
p. 341, "1817" = Dec. 7th, 1816. Type (by
subsequent designation, Gray, 1840, p. 34): *Corvus papuensis* Gmelin.

Coracina Vieillot, Analyse nouv. Ornith., p. 37,
April 14th, 1816. Type (by subsequent designa- "Choucari" = *Corvus*
tion Cabanis, Mus. Hein., Vol. I., p. 62, 1851): *papuensis* Gmelin.

Not—
Coracinus Pallas, Zoogr., Vol. III., p. 255, 1814.

Corvina Hahn, Vögel aus Asien, Africa, etc., Vol. I.,
heft XI., pl. 3 and text, 1822. Error for
Coracina Vieillot.

Coronis Gloger, in Froriep's Notizen, Vol. XVI.,
p. 277, March 1827. New name for "*Coracina*
Vieillot." Type *Corvus papuensis* Gmelin.

Not—
Coronis Latreille, Encyc. Method., Vol. X., p. 474, 1825.

LARGE Campophagine birds with strong stout bills, long wings, long, straight
tail and small but stout legs and feet.

The bill is triangular and stout, the culmen keeled, greatly arched, the
tip attenuate and sharply decurved and notched ; the sides expand so that at
the base the width about equals the depth, and is equal to half the length of
the culmen ; the under mandible is stout, the interramal space very small
and fully feathered ; the nostrils are placed basally in small nasal grooves
and are entirely hidden by frontal feathers ; rictal bristles few, strong, but
not pronounced. The wing is long and pointed, the first primary short and
narrow and less than the secondaries, and only about half the length of the
third which slightly exceeds the second ; the third, fourth and fifth are sub-
equal and longest ; the sixth is longer than the second, but the seventh is
shorter than the third.

The tail is long and square, about three-fourths the length of the wing.

The feet are short and stout ; the tarsus a little longer than the culmen
shows about four broad scutes anteriorly, and is bilaminate posteriorly ; the
toes short and as in preceding genus, scutellate.

Coloration grey above, wings and tail black, as is the face ; throat grey
under-surface otherwise white. Male and female alike, but young differ a little.

GRAUCALUS.

As the genus name *Coracina* has been used in place of *Graucalus*, an explanation of its introduction, usage and rejection is here given.

In a small volume entitled *Analyse d'une Nouvelle Ornithologie élémentaire*, published in 1816 by Vieillot, on page 37 is written :

“Coracine, *Coracina*, *Corvus*, Linn. Gm. Lath.

“Bec glabre, ou emplumé, ou cilié à la base, épais, rétréci à la pointe, déprimé, anguleux en dessus, courbé vers le bout, entier ou échancré ; mandible inférieure un peu aplatie en dessous, 4 sections.

“*Esp.* Col - nud. — Choucari — Choucas chauve Buff. — Cephaloptère. — Geoffroy, Annales du Muséum.”

The first named had been previously differentiated as a distinct genus *Gymnoderus* by Geoffroy, at the same time as he proposed for the third *Gymnocephalus*, and the last named *Cephalopterus*. It is obvious that Vieillot was proposing a genus name for the lumping of Geoffroy's three genera, and added as an additional form the “Choucari.” Temminck replied in 1817 with some “Observations,” criticising all Vieillot's groups, especially referring to Illiger's classification of 1811 as recognised by himself in his “Manuel” in 1815, and on page 56 he noted that for “*Cephalopterus* of Geoffroy and Illiger, *Coracina* had been proposed for Vieillot.” In 1840 Gray synonymised Vieillot's *Coracina* under the different genera above cited but selected no type. Selby, in the same year, selected a species that was not one of the original ones but one added later by Vieillot, probably because Selby had not seen Vieillot's rare little tract, but was only familiar with Vieillot's usage in the *Nouv. Dict. d'Hist. Nat.* Gray in 1847 (*Genera Birds*, Vol. II., p. 319, March) under *Gymnoderus*, wrote : “*Coracina* Vieillot, 1816, is synonymous,” thus accepting the first species in Vieillot's lot as the restricted type. Unfortunately he did not explicitly state such to be the case, so that in 1851 Cabanis, ruling out the three genera with earlier names, proposed that the Choucari be accepted as the type of *Coracina*, thus replacing the well-known Cuvierian genus name of *Graucalus* proposed in 1817 (1816).

Order PASSERIFORMES.

No. 491.

Family CAMPOPHAGIDÆ.

GRAUCALUS NOVÆHOLLANDIÆ.

BLACK-FACED CUCKOO-SHRIKE.

(PLATE 413.)

Turdus novæhollandiæ Gmelin, Syst. Nat., Vol. I., pt. II., p. 814, April 20th, 1789 :
Nova Hollandia = Adventure Bay, Tasmania.

New Holland Thrush, Latham, Gen. Synops. Birds, Vol. II., pt. I., p. 37, 1783.

Turdus novæhollandiæ Gmelin, Syst. Nat., Vol. I., pt. II., p. 814, 1789.

Corvus melanops Latham, Index Ornith. Suppl., p. 24, (after May 30th) 1801 : New South
Wales.

Coracina melanops Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. VIII., p. 7, 1817.

Ceblephyrus melanops Temminck, Manuel d'Ornith., 2^e ed., Vol. I., p. LXII., 1820.

Graucalus melanops Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 216, 1827 ;
Gould, Synops Birds Austr., pt. IV., pl. 56, 1838 ; *id.*, Birds Austr., pt. XIX. (Vol. II.,
pl. 55), 1st June, 1845 ; Bonaparte, Consp. Gen. Av., Vol. I., p. 353, 1851 ; Gould,
Handb. Birds Austr., Vol. I., p. 192, 1865 ; Masters, Proc. Linn. Soc. N.S.W., Vol.
I., p. 48, 1875 ; Ramsay, *ib.*, Vol. II., p. 180, 1878 ; Sharpe, Cat. Birds Brit. Mus.,
Vol. IV., p. 30, 1879 ; Ramsay, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds
Austr., p. 12, 1899 ; Campbell, Nest and Eggs Austr. Birds, Vol. I., p. 96, 1901 ;
North, Austr. Mus. Spec. Cat., No. 1, pt. 2, p. 103, 1902 ; Hall, Emu, Vol. I., p.
106, 1902 (N.W.A.) ; Belcher, *ib.*, p. 125 (Vic.) ; Le Souëf, *ib.*, Vol. II., p. 142,
1903 (N.T.) ; Milligan, *ib.*, Vol. III., p. 16, 1903 (W.A.) ; Carter, *ib.*, p. 35 (M.-W.A.) ;
Berney, *ib.*, Vol. V., p. 20, 1905 (N.Q.) ; C. F. Cole, *ib.*, Vol. VIII., p. 154, 1909
(Vic.) ; Whitlock, *ib.*, p. 179 (M.-W.A.) ; Broadbent, *ib.*, Vol. X., p. 235, 1910 (N.Q.) ;
Macgillivray, *ib.*, Vol. XIII., p. 169, 1914 (N.Q.) ; White (H. L.), *ib.*, Vol. XVI.,
p. 223, 1917 (N.T.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 25, 1917 (N.Q.) ;
Macgillivray, *ib.*, p. 200 (N.Q.)

Graucalus papuensis (errore) Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV.,
p. 216, 1827.

Graucalus choucari Laugier, Cat. Birds Coll., p. 8, 1836 : New South Wales.

Graucalus melanotis Gould, Synops. Birds Austr., pt. IV., pl. (56), April 1838 : New South
Wales.

Graucalus parvirostris Gould, *ib.*, "New South Wales" = Tasmania ? ; *id.*, Proc. Zool.
Soc. (Lond.), 1837, p. 143, Dec. 1838 ; *id.*, Birds Austr., Introd., 8vo. ed., p. 36,
1848 ; Bonaparte, Consp. Gen. Av., Vol. I., p. 354, 1851 ; Gould, Handb. Birds



H Grönvold del.

Witherby & Co.

GRAUCALUS NOVAEHOLLANDIAE.
(BLACK-FACED CUCKOO-SHRIKE).

BLACK-FACED CUCKOO-SHRIKE.

- Austr., Vol. I., p. 194, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 32, 1879; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 239, 1887; Ramsay, Tab. List Austr. Birds, p. 4, 1888; Hall, Key Birds Austr., p. 12, 1899; North, Austr. Mus. Spec. Cat., No. 1, p. 105, 1902; A. G. Campbell, Emu, Vol. II., p. 205, 1903 (King Island); Littler, *ib.*, Vol. III., p. 24, 1903 (Tas.); Mellor and White, *ib.*, Vol. XII., p. 162, 1913 (Flinders Island); Littler, Handb. Birds Tasm., p. 17, 1910.
- Ceblepyris parvirostris* Rüppell, Mus. Senckenb., Vol. III., pt. 1., p. 36, 1839.
- Campephaga parvirostris* Gray, Genera Birds, Vol. I., p. 283, 1846.
- Campephaga melanotis*, Gray, *ib.*
- Graucalus robustus* (nec Latham), Sharpe, Hist. Coll. Nat. Hist. Brit. Mus., Vol. II., p. 113, 1906.
- Coracina robusta* Mathews, Handl. Birds Austral., p. 68, 1908; Hall, Emu, Vol. IX., p. 127, 1910 (Eyre Peninsula, S.A.); Whitlock, *ib.*, p. 194 (M.-W.A.)
- Graucalus melanops parvirostris* Campbell, Nests and Eggs Austr. Birds., Vol. I., p. 97, 1901.
- Coracina parvirostris* Mathews, Handl. Birds Austral., p. 68, 1908.
- Coracina melanops tasmanica* Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 100, July 13th, 1911: Tasmania.
- Coracina novæhollandiæ novæhollandiæ* Mathews, Nov. Zool., Vol. XVIII., p. 326, 1912; *id.*, List Birds Austr., p. 193, 1913.
- Coracina novæhollandiæ melanops* Mathews, Nov. Zool., Vol. XVIII., p. 326, 1912; *id.*, List Birds Austr., p. 193, 1913; Belcher, Birds of Geelong, p. 245, 1914.
- Coracina novæhollandiæ westralensis* Mathews, Nov. Zool., Vol. XVIII., p. 326, Jan. 31st, 1912: Wilson's Inlet, South-west Australia; *id.*, List Birds Austr., p. 193, 1913.
- Coracina novæhollandiæ subpallida* Mathews, Nov. Zool., Vol. XVIII., p. 326, Jan. 31st, 1912: (Strelly River) North-west Australia; *id.*, List Birds Austr., p. 193, 1913; *id.*, Ibis, 1914, p. 122; *id.*, South Austr. Ornith., Vol. III., pt. 5, p. 138, Jan. 1st, 1918; Söderberg, Kungl. Svenska Vet. Handl., Band LII., No. 17, p. 88, 1918.
- Coracina novæhollandiæ connectens* Mathews, Nov. Zool., Vol. XVIII., p. 326, Jan. 31st, 1912: Inkerman, Queensland; *id.*, List Birds Austr., p. 193, 1913; *id.*, South Austr. Ornith., Vol. II., pt. 3, p. 56, July 1st, 1915.
- Coracina novæhollandiæ didimus* Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 42, April 2nd, 1912: Melville Island, Northern Territory.

DISTRIBUTION. Australia generally and Tasmania.

Adult male. Fore-part of head, lores, rictal bristles, sides of the face including the eye, throat, and fore-neck deep black; crown of head, entire back, upper tail-coverts, scapulars, upper wing-coverts, outer webs of secondaries, and outer margins and tips of flight-quills pale ash-grey; bastard-wing black; flight-quills blackish, broadly margined with white on the inner webs; middle tail-feathers greyish-brown, the outer feathers blackish broadly tipped with white; breast and thighs ash-grey becoming paler on the sides of the body; lower abdomen, vent, under tail-coverts, axillaries, under wing-coverts and inner margins of flight-quills below

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white ; remainder of quill-lining greyish-brown ; lower aspect of tail also greyish-brown broadly tipped with white. Eyes blackish-brown ; feet and tarsi black ; bill black. Total length 335 mm. ; culmen 25, wing 192, tail 143, tarsus 29. Figured. Collected at Mungi, North-west Australia, on the 3rd of July, 1911.

Adult female. Similar to the adult male.

Immature female. General colour of the upper-surface pale ash-grey including the top of the head, entire back, upper tail-coverts, scapulars, upper wing-coverts, and outer webs of secondary-quills ; bastard-wing and primary-coverts blackish-brown with pale edges on the outer webs ; flight-quills blackish with whitish edges to the outer webs and broad white margins to the inner ones ; tail dark smoke-brown with white tips to the feathers, outer edges of outermost feathers on each side also white, the two middle feathers grey, becoming darker towards the tips ; a few dark feathers on the fore-part of the head ; rictal bristles, lores and sides of the face including the eye black ; chin and throat grey with dark feathers intermixed ; breast pale ash-grey fading into white on the abdomen, flanks, and under tail-coverts ; axillaries, under wing-coverts, and inner margins of flight-quills below also white ; remainder of quill-lining greyish-brown ; lower aspect of tail also greyish-brown, but rather darker, with whitish tips to the feathers and whitish along the outer web of the outermost feather on each side. Eyes brown ; feet and tarsi black ; bill black ; base of lower mandible brown. Figured. Collected at Mungi, North-west Australia, on the 1st of July, 1911.

Immature. General colour of the upper parts slate-grey including the top of the head, entire back, rump and upper tail-coverts, scapulars and upper wing-coverts, some of the outer greater coverts paler and inclining to rust-brown ; bastard-wing, primary-coverts and flight-quills blackish with grey edges to the outer webs of the feathers, which are also grey at the tips, the grey margins becoming more extensive on the secondaries, the inner webs broadly margined with white on the basal portion ; tail greyish-brown at the base and greyish-white at the tip, the white increasing in extent on the outer feathers, the basal portion of which are blackish ; the feathers on the fore-head have dark centres which impart a spotted appearance ; lores and sides of face black, the feathers stiffened and bristly ; chin, throat and cheeks dusky-grey with dark centres to the feathers ; breast, sides of breast, and upper-abdomen dusky-grey with slightly indicated cross-bars to the feathers, thighs similar but paler grey ; lower-abdomen, flanks, and under tail-coverts much paler and inclining to white ; axillaries, under wing-coverts and inner margins of quills below pure white, the remainder of the quills greyish-brown ; lower aspect of tail also greyish-brown with white shafts and pale tips to the feathers. Collected in Tasmania.

Male juvenile. Crown of head, hind-neck, back, scapulars, upper wing-coverts, upper tail-coverts, and middle tail-feathers silvery-grey ; bastard-wing black ; primary-coverts blackish slate-grey on the outer webs ; flight-quills black, pale slate-grey on the outer margins and at the tips ; outer tail-feathers white ; lores, feathers surrounding the eye, and ear-coverts blackish ; throat, abdomen, thighs, under tail-coverts, and lower aspect of tail white ; breast pale ash-grey. Collected at Running Water, 50 miles North-west of Lake Way, West Australia, on the 22nd of October, 1899.

Immature female (obtaining first plumage). Crown of head, nape, hind-neck, sides of neck, back, upper tail-coverts, upper wing-coverts, throat and breast smoke-brown with whitish margins to the feathers, which have grey bases ; greater upper wing-coverts and margins of secondary-quills ash-grey ; bastard-wing, primary-coverts and flight-quills black with white or grey margins to the feathers ; tail dark brown at the base and greyish-white on the apical portion, which is more extensive on the

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outer feathers ; lores, feathers below and behind the eye, and ear-coverts blackish ; abdomen and sides of body white with a wash of smoke-brown ; thighs like the breast ; lower-abdomen, vent and under tail-coverts covered with white down ; margin of under wing white ; under-surface of quills slate-brown ; lower aspect of tail-coverts white or greyish-white. Eyes light blue ; feet fleshy ; bill horn-brown. Collected at Ringwood, Victoria, on the 3rd of November, 1914.

Nest. Nearly flat. Placed in a three-pronged fork of a bloodwood tree about 18 feet up. Composed of fine twigs, stems of annuals, a little grass and a few small leaves, loosely fastened together with cobwebs and the outside covered lightly with the same material. Outside dimensions $5\frac{3}{4}$ by $2\frac{1}{2}$ inches deep. Inside $3\frac{1}{2}$ by $\frac{3}{4}$ deep.

Eggs. Clutch, three. Ground-colour greenish-brown, spotted (more on the larger end) with reddish and light grey spots. 31-34 mm. by 22-24.

Breeding-season. February, March and July (Queensland) to December (Derby).

THIS bird was first met with by the naturalists accompanying Captain Cook on his third voyage when a specimen was secured at Adventure Bay, Tasmania, and painted by Ellis. The painting passed into the possession of Sir Joseph Banks and thence into the Library attached to the Natural History Department of the British Museum. Whether the specimen was preserved or not it is impossible to determine, as when Latham described his New Holland Thrush, he wrote : " In the collection of Sir Joseph Banks." This may have referred to the specimen itself or to the painting above mentioned, as at that time for the purposes of description they did not discriminate between paintings and the subjects themselves. This description was reproduced by Gmelin, who gave it the Latin name *Turdus novæhollandiæ*. This name appears to have been entirely ignored, through the inaccurate generic location, and even when Sharpe worked through the paintings made by Ellis, and at once recognised this one, he did not draw attention to the fact that the name should come into use as the earliest given to the species. At the same time Sharpe collated the Watling drawings and identified No. 28 which Latham had named *Lanius robustus* as referable to this species and anterior to No. 58, which Latham simultaneously named *Corvus melanops*. The former had not been recognised, but the latter had been, and the name was in common use. Sharpe noted, therefore, that the name of the species should be *Graucalus robustus*.

When I carefully studied the Watling drawings I concluded that Sharpe had erred, and that Latham's *Lanius robustus* was founded on a painting of the Little Cuckoo-Shrike, and that consequently it would be usable for that species and not for the present one. Later I recognised that Ellis's painting should be considered and found that Latham's description above noted was based on it, a point which Sharpe had not investigated. Consequently, as it was the oldest, the Ellis painting being made in 1777, Gmelin's name became valid for the species.

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When Vigors and Horsfield drew up their report upon the Australian birds in the collection of the Linnean Society they determined some specimens as *Graucalus melanops* ex *Corvus melanops* Latham, writing: "Mr. Caley says of this bird that it may generally be seen on the tops of high dead trees. He does not consider it migratory. One of his specimens is marked 'male,' and a second 'female.' Others were included under the name *Graucalus papuensis* ex *Corvus papuensis* Gmelin, with the note: 'M. Temminck unites these two last birds as different sexes of the same species; the latter being the female. We know not upon what authority he has founded this opinion. We must, however, observe that the only specimen of the *G. papuensis* in the Linnean collection, collected by Mr. Caley, is marked by that gentleman as a male; while a specimen of the *G. melanops* is noted as a female. Time will clear away the difficulties that attend such points. At present we can only state the doubts which exist on the subject.' " Of course, all the specimens Vigors and Horsfield handled, as above, belonged to one species, but that was not Gmelin's *Corvus papuensis*, which is a different but closely allied species.

Gould's account is worth repeating: "New South Wales, Tasmania, Swan River and Port Essington are each inhabited by *Graucali* so nearly allied that by many persons it would be considered questionable whether they were not referable to one and the same species; but as this is by no means certain, I shall confine my remarks to the bird inhabiting New South Wales, which is one of the largest of the genus yet discovered, which is distinguished from its near allies by the greater depth of the blue-grey colouring of the upper-surface, and to which the synonyms given above refer.

"The *Graucalus melanops*, then, is a very common bird in New South Wales, but is far less numerous in winter than in summer, when it is so generally dispersed over the colony that to particularise situations in which it may be found is quite unnecessary; hills of moderate elevation, flats, and plains thinly covered with large trees being alike resorted to; but I do not recollect meeting with it in the midst of the thick brushes—situations which probably are uncongenial to its habits and mode of life. It is very abundantly dispersed over the plains of the interior, such as the Liverpool and those which stretch away to the northward and eastward of New South Wales. Its flight is undulating and powerful, but is seldom exerted for any other purpose than that of conveying it from one part of the forest to another, or to sally forth in pursuit of an insect, which may pass within range of its vision while perched upon some dead branch of a high tree, a habit common to this bird and the other members of this genus. On such an elevated perch it sometimes remains for hours together; but during the heat of the day seeks shelter from the rays of the sun by shrouding itself amidst the dense foliage of the trees. Its food consists of

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insects and their larvæ and berries, but the former appear to be preferred, all kinds being acceptable, from the mantes to others of a minute size.

“When the young, which are generally two in number, leave the nest, the feathers of the body are brown, margined with light grey; this colouring is soon exchanged for one of a uniform grey, except on the lower part of the abdomen and under tail-coverts, which are white, and a mark of black which surrounds the eye and spreads over the ears; the throat and fore-head in this stage are lighter than the remainder of the plumage, which is somewhat singular, as in the next change that takes place those parts become of a jet-black; and this colour, I believe, is never afterwards thrown off, but remains a characteristic of the adult state of both sexes, which are at all times so similar in size and colour as not to be distinguished from each other. Its note, which is seldom uttered, is a peculiar single purring or jarring sound, repeated several times in succession.”

Gould had separated the Tasmanian form as a distinct species and explained: “In my description of *Graucalus melanops*, I have stated that New South Wales, Tasmania, Swan River and Port Essington are each inhabited by *Graucali* so nearly allied to each other that it was questionable whether they were not one and the same species, and that the slight differences they present were attributable to some peculiarity in the districts they inhabit; after much attention to the subject, I have been induced to regard the Tasmanian bird as distinct, and I have therefore assigned it a name, *parvirostris*.”

Captain S. A. White has written me: “This is widely distributed, being found practically all over the State (South Australia). It shifts much according to food supply. The birds are most plentiful with us on the Adelaide plains in the autumn, and just after the rains large nocturnal moths come out of the ground and the birds seem to be in search of them. Its pleasing light grey plumage and graceful flight make it a great favourite; the diet is very varied, insects forming the greater part, berries and seeds being also eaten, and I have seen several birds feeding upon ripe ivy berries: they swept past and took the berry while upon the wing. They search diligently for mantis and phasma, and I have seen them hopping about upon the ground picking up ants. They nest from September to December, and the nest is a very flimsy affair of cobwebs, bark, etc., placed on the horizontal fork of a tree at varying heights from the ground; it is so loosely constructed that the eggs (which are two or three in number) can be easily seen from underneath. Flight undulatingly soft with long beats of the wings: the call is a strange rattle, often made on the wing. I have met with the Tasmanian subspecies in Tasmania; its habits seem identical with those of the mainland form. I have often seen them hawking for moths in the evening a little after sundown.”

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Mr. E. J. Christian's notes read : " This species is found all over Australia and Tasmania, but the bird inhabiting the latter island is smaller. The birds go away north for the winter, and return to this part either in September or October and generally remain until about March or sometimes early in April. It is a tree-loving bird and prefers to remain hidden in the thick foliage of the eucalyptus. I have often watched them, and they will sit on one branch for a long while, now and then making a peculiar note, which is repeated several times in succession ; this note is a harsh jarring one. The bird has long wings and tail, which make it look very much like a Cuckoo when flying, but its bill shows it to be a Shrike. It is an exceedingly useful bird, and I have seen it catching many insects. I think that it also eats the ants which climb the trees to get to the eucalyptus blossom, for I have watched them eating something off the boughs and also on the trunk. When a flock gets together before nesting, as I have frequently seen them on the River Yarra in Stredley Park ($4\frac{3}{4}$ miles E. of Melbourne), there is a great commotion in the trees, and their harsh cry can be heard at a great distance. They look very pretty when the sun is shining on them. The nest is very hard to find, as it greatly resembles the bough on which it is placed. It is not very big, considering the size of the bird."

Mr. Edwin Ashby writes : " This appears to be a common species, as I have collected them in all the mainland States right through to Queensland. In the late summer a flock often comes into my garden at Blackwood and attacks the grapes on my vine trellis. The nest is usually placed in a fork and is exceedingly small compared to the size of the bird."

Mr. Sandland also observes : " A few pairs come to Balah, South Australia, each year, but they are never numerous."

Mr. F. E. Howe has written : " Is a summer visitor and makes its appearance here during September. They appear to live in small families for a few weeks, and pass their time in the tallest trees, floating gracefully from tree to tree. When it takes a longer flight it has a slow and undulating motion, and as they perch on the limbs the wings are folded and unfolded three or four times."

Mr. Tom Tregellas has written me : " The Black-faced Cuckoo-Shrike is a migrant in the southern parts of Victoria, going north after the nesting season is over and coming south in spring again. They are seldom seen in any great quantity, generally two or three pairs flying together and emitting their peculiar ' Wark, wark ' notes. Another peculiarity with regard to these birds is their method of wing folding. When alighting in a tree after a flight, the wings are raised and lowered several times, as if to get the proper adjustment, and there seems to be a difficulty in getting them properly fixed. Sometimes, when they settle and get properly folded up, they sit for long periods in the tops,

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motionless and quiet, and no one would know of their presence. The bird mostly frequents the tree-tops and seldom comes to the ground, passing most of its life searching the boughs for food at an elevation of about a hundred feet, and building its nest frequently at that height also. In the fruit season the bird is destructive to soft pulpy fruit, and it is extremely wary in its operations. One bird will watch whilst the others are at work, and on the approach of the orchardist an alarm-note is given and the birds escape. The nest is a most primitive structure. It is built of a few twigs and spiders' cocoons, is always placed on a horizontal limb at the fork, and is just large enough to hold the two or three eggs which are laid. When the young are hatched there is room for one only in the nest. The other or others have to sit on the edge of the nest or on the limb. When nearing the nest the old parents 'dart furiously at the intruder and create no little noise with their bill-snapping.'

Writing from Tasmania, Mr. Frank Littler has sent me the following note : " During the greater portion of the year this species is distributed throughout Tasmania. During the breeding-season (October to December) it generally goes in pairs ; at other times in small flocks of six or eight. Large flocks of twenty and upwards are only to be seen during the winter months and then more particularly about the north-west corner of the island. It is much tamer in the winter. Its food consists of insects of every description, which it captures either in the air or by searching in the leaves and rubbish on the ground. This bird has no song, but has a variety of notes, which are used on different occasions ; the most notable is a loud, shrill, and somewhat harsh alarm-note. The notes uttered during the breeding-season are soft and somewhat sweet. They vary greatly, sometimes resembling a cooing sound. When on the wing, soft, whirring kind of notes are uttered. The flight of this bird is very distinct, flying in an undulating line of regular waves ; as it reaches the top of each wave the wings are folded against the body, when it reaches the lower part of the wave it smartly beats the air again. It is not a strong flyer, but at times it may be called rapid."

Mr. H. S. Dove, from West Devonport, Tasmania, wrote me under date May 10th, 1909 : " On Saturday, the 8th, I was surprised to see a flock of about thirty of these birds pass over the town, heading away to the north-west ; wind was light from south-east and sky overcast, with occasional sunny gleams. It is very unusual to see so many Graucali together so late in the season, although one or two generally remain the winter with us ; it is not definitely known where they go to winter, although the east coast of Tasmania is spoken of by some naturalists. The flock just noted was going fast in a definite direction as if migrating, and I have seen similar parties, coming from the north-west in spring (September) and have wondered if

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they use King Island to winter on, as it is said this form is never met with on the mainland. The *Graucalus* always flicks up first one wing, then the other, after alighting on a branch or fence, and the wings being rather long and pointed, make this action very noticeable."

Miss J. A. Fletcher has sent me the following note: "While spending a holiday on the shores of Lake Lovell, Tasmania, I had a chance of watching a pair of Black-faced *Graucalus* at work. The nest at which they were working was high up in the flat fork of a white gum tree. Both birds worked, and occasionally one would arrive with a mouthful of material just as the other was leaving. Immediately the latter would return to the nest and start rearranging what it had just placed, the other bird meanwhile sitting patiently on the limb near by until its contrary mate decided to leave. I saw the birds going up and down the cracks, forks and twigs of the trees hunting for cobwebs, so I concluded the nest was nearly finished."

Mr. J. W. Mellor has also sent me some notes, in which he states: "It lives on large insects and grubs, also on berries, but does not attack the large fruit cultivated in the gardens. The nest is a very flimsy structure; in fact, but for the bird sitting on it, one would pass it by unnoticed."

Mr. A. G. Campbell considers he "can see no difference between birds shot in Southern Victoria about Port Phillip and the Tasmanian form."

Mr. Thos. P. Austin has forwarded me the following account: "A common species throughout this district (Cobbora, New South Wales), and found in all classes of timbered country, but much more numerous during the warmer months of the year than the winter. Its flight is noticeable by first a few rapid wing beats, then for a short distance it floats through the air with closed wings, somewhat similar to a *Platycercus eximius*. As soon as it alights, it has a peculiar habit of slightly lifting its wings one after the other, repeated several times, giving one the impression that they had not folded comfortably. It is rather a nuisance in orchards, more especially vineyards; but it appears to gather most of its food amongst the leaves of large eucalyptus trees, and it is very seldom seen upon the ground. In many districts it is known by the names of Blue Jay or Summer-bird. Its note is musical and somewhat flutelike, nearly always uttered at short intervals during flight, but may also be heard while the bird is perched."

Mr. Tom Carter's notes, made in Western Australia, read: "The Black-faced Cuckoo-Shrike is generally distributed through West Australia. It is generally known as the 'Blue Pigeon' by settlers. In the Gascoyne River and North-West Cape districts, the breeding-season is usually in July and August, the small flat nests being placed on the fork of a horizontal branch. On July 14, 1901, I climbed to a nest of *Haliastur sphenurus* in the top of a

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white gum tree, inland from Point Cloates. While doing so a pair of *Graucalus* made a great fuss around me, and upon reaching the Eagle's nest, I looked down, and saw the *Graucalus*' nest on the fork of a lower branch in the same tree. It contained two eggs. Half-grown young were seen in nest Aug. 24. About Broome Hill the breeding-season is much later, being September, October and November. Two incubated eggs were taken Nov. 4, 1906. From the situation of the nests they are easily overlooked."

Mr. J. P. Rogers reported that "they were numerous on the light timbered plains of the lower Ord River but rare at Mary River, in the Kimberley gold-fields. Very widely distributed in West Kimberley, being found everywhere except on the treeless plains, being most numerous on the billabongs, water-holes and timbered country along the Fitzroy. Appears to be a resident species here and any difference in numbers during the year cannot be noticed. At Marngle Creek they were not numerous, while at Mungi they were very rare, and appeared to be smaller birds than those met with on the Fitzroy River. At Melville Island they were never numerous, and small parties were seen flying high over the trees at various times."

Campbell has recorded that in answer to the query, "Does the Short-billed Cuckoo-Shrike leave Tasmania or migrate during winter?" the evidence presumed that it was more or less stationary, being met with not uncommonly during the winter months in small flocks.

Berney noted that in the Richmond district, North Queensland: "This bird is with us all through the year. I have seen a nest with young on the 19th November, another with old bird sitting on 5th February, and a third nest on 25th March with three full-fledged young."

C. F. Cole has written: "This fine insectivorous bird generally makes its appearance in the Hawthorn district each year about the end of March, and is to be seen during the day searching amongst the leaves and beneath the bark of trees for caterpillars, spiders, beetles, etc. . . . It does good work in an apple orchard by eating the larvæ of the Painted Apple-Moth, also another caterpillar similar in its habits to the above, but much larger, and very destructive to the foliage of the apple-tree. . . . Many years ago, while shooting in a paddock at Hawthorn, I came upon a flock of these birds fossicking around the dried-up carcass of a dead cow. Upon examining the carcass I found they had been feeding upon what they could manage to pick from the ribs. Upon shooting one, I found that the stomach contained, besides rib-pickings, several insects belonging to the order of *Coleoptera*."

Whitlock records: "On the Pilbarra Goldfield, mid-West Australia, not uncommon along the Coongan and de Grey Rivers. Several nests were found. Native name Te-by-by."

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Mellor and White note that on Flinders Island they were "met with in pairs, and from the well worn state of their plumage apparently they had finished nesting some time previously. There is little or no variation between these birds and the Tasmanian specimens."

Macgillivray's notes read: "Numerous throughout the Gulf country, and during the winter months only at Cape York, where they assemble in large flocks prior to their departure. After September only an occasional bird is noted."

Campbell and Barnard wrote from Cardwell: "Cuckoo-Shrikes were common, and were often seen in small flocks. There is no appreciable difference (save in size) between the Cardwell bird and the familiar southern Black-faced species. These birds were not observed at first at Cardwell, but were noted later in small flocks, as were seen at Mackay during July."

As related previously, Gould stated that probably there were different species confined to geographical areas, each representing the other, confused as one species under the name *G. melanops*. He indicated the Tasmanian form as easily recognisable under the name *G. parvirostris*, the name signifying the differential feature. However, I noted that when he had described *G. parvirostris* he had given as locality "New South Wales," and that it was only after he came to the conclusion that Tasmanian birds had small bills that he assigned that locality to his previously described species. I therefore placed *G. parvirostris* as a synonym of the typical (*melanops*) form and re-named exactly the Tasmanian race. However, when Witmer Stone examined the Gould collection, he concluded as the birds labelled *G. parvirostris* came from Tasmania that should be regarded as the type locality. As the item has proved to be of no consequence whatever, the earliest name of all having been given to the Tasmanian form, I have accepted Stone's action. Consequently, both Gould's and my own names become synonyms of the earliest name; while *melanops*, the previously accepted species name, becomes the subspecific one for the eastern continental form. It may, however, be as well reiterated here that Gould's actions in connection with some of his earlier and dubiously distinguished species were not beyond reproach. The fact that the specimens in the Gould Collection, all labelled *parvirostris*, came from Tasmania, does not prove that he so named the Tasmanian bird. It was quite commonly a practice of Gould, as well as of his contemporaries, to displace what we now consider a type by a better specimen when such was received, and the latter bird was not unfrequently marked as if it had been the original bird studied. In connection with the previous species I have noted the present confusion regarding the location of Gould's types through this misplacement of ideas. It is probable that many of the specimens at

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present regarded as types have no validity as such, and perhaps the original specimens studied have entirely ceased to exist.

The subspecies of this form I accept as differentiated in 1912 with the emendation of the generic name to *Graucalus*. These were named as follows :

Coracina novæhollandiæ novæhollandiæ (Gmelin).

Tasmania.

Recognised as a distinct species by the older ornithologists on account of its slightly smaller bill, but A. G. Campbell stated he could not distinguish Victorian examples in this or any other respect. It is therefore probable that the range of this "island" form should include the islands of Bass Straits and Southern Victoria.

Coracina novæhollandiæ melanops (Latham).

New South Wales, Victoria.

This, the familiar "typical" form, probably only ranges into Northern Victoria and certainly into South Queensland, while Campbell suggests the Northern Queensland form scarcely differs.

Coracina novæhollandiæ westralensis Mathews.

South-west Australia.

Separated on account of its larger size and lighter upper coloration, with a wing measurement of 206 mm.

Coracina novæhollandiæ subpallida Mathews.

North-west Australia, Northern Territory.

Differentiated by means of its much paler upper-surface and smaller wing measurement (184 mm.) even compared with the next.

Coracina novæhollandiæ connectens Mathews.

North Queensland.

Regarded as being paler above and slightly smaller in size, compared with the typical form, the typical locality being Inkerman, North Queensland.

I also separated *Coracina novæhollandiæ didimus* from Melville Island as "lacking the black throat and fore-head, the throat being dark French grey," but later treated this as a doubtful synonym of *C. n. subpallida*, which, however, was described from Strelly River, really mid-West Australia, though commonly called North-west Australia. The present nomination of the subspecies would therefore read :

Graucalus novæhollandiæ novæhollandiæ (Gmelin).

Graucalus novæhollandiæ melanops (Latham).

Graucalus novæhollandiæ westralensis (Mathews).

Graucalus novæhollandiæ subpallidus (Mathews).

Graucalus novæhollandiæ didimus (Mathews).

Graucalus novæhollandiæ connectens (Mathews).

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Campbell has recorded (*Emu*, Vol. XX., p. 61, 1920) from the Torres Straits Islands, *Graucalus melanops*, writing: "One male. In plumage change *i.e.*, does not show the black throat and fore-head, which parts are mottled black and grey, and the tail feathers are much abraded. The bill, however, is larger than that of any other example of the species in the collection. Wing 177 mm. as against wing 200 mm. for a Victorian specimen."

This may refer to a distinct subspecies or even to a different species, as these birds differ very slightly in the different species. The large bill is a common feature in connection with Papuan representatives of this family, and I have not accepted any extra-limital subspecies of the present species, as the material does not warrant such.



H. Grönvold, del.

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GRAUCALUS HYPOLEUCUS.
(WHITE-BELLIED CUCKOO-SHRIKE).

GRAUCALUS HYPOLEUCUS.

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(PLATE 414.)

GRAUCALUS HYPOLEUCUS Gould, Proc. Zool. Soc. (Lond.), 1848, p. 38, Nov. 14th : Port Essington, Northern Territory.

Graucalus hypoleucus Gould, Proc. Zool. Soc. (Lond.), 1848, p. 38 (Nov. 14th) ; *id.*, Birds Austr., pt. xxxiii. (Vol. II., pl. 57), Dec. 1st, 1848 ; Bonaparte, Consp. Gen. Av., Vol. I., p. 354, 1851 ; Gould, Handb. Birds Austr., Vol. I., p. 196, 1865 ; Ramsay, Ibis, 1865, p. 84 ; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 48, 1875 ; Ramsay, *ib.*, Vol. II., p. 180, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 36, 1879 ; Ramsay, Tab. List Austr. Birds, p. 4, 1888 (*hyperleucus*) ; Hall, Key Birds Austr., p. 12, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 98, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, pt. 2, p. 109, 1902 ; Le Souëf, Emu, Vol. II., p. 142, 1903 (N.T.) ; Barnard, *ib.*, Vol. XIV., p. 44, 1914 (N.T.) ; H. L. White, *ib.*, Vol. XVI., p. 223, 1917 (N.T.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 25, 1917 (N.Q.) ; Macgillivray, *ib.*, p. 200, 1917 (N.Q.) ; Campbell, *ib.*, Vol. XVIII., p. 183, 1919 (N.T.) ; *id.*, *ib.*, Vol. XX., p. 61, 1920 (N.Q.)

Campephaga hypoleuca Gray, Proc. Zool. Soc. (Lond.), 1858, p. 179.

Graucalus papuensis hypoleucus Hartert, Nov. Zool., Vol. XII., p. 224, 1905.

Coracina hypoleuca Mathews, Handl. Birds Austral., p. 68, 1908.

Coracina hyperleuca Barnard, Emu, Vol. XI., p. 26, 1911 (N.Q.).

Coracina hypoleuca hypoleuca Mathews, Nov. Zool., Vol. XVIII., p. 327, 1912 ; *id.*, List Birds Austr., p. 193, 1913.

Coracina hypoleuca stalkerii Mathews, Nov. Zool., Vol. XVIII., p. 327, Jan. 31st, 1912 : Cooktown, North Queensland ; *id.*, List Birds Austr., p. 194, 1913 ; *id.*, South Austr. Ornith., Vol. II., pt. 3, p. 57, 1915.

Coracina hypoleuca apsleyi Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 42, April 2nd, 1912 : Melville Island, Northern Territory.

Coracina hypoleuca parryi Mathews, *ib.*, p. 43, Parry's Creek, North-west Australia ; *id.*, List Birds Austr., p. 194, 1913.

DISTRIBUTION. Northern Tropical Australia from North Queensland to North-west Australia.

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Adult female. General colour of the upper-surface slate-grey including the top of the head, ear-coverts, entire back and upper tail-coverts, scapulars and upper wing-coverts, some of the greater series of the last fringed with paler grey; bastard-wing blackish narrowly edged with white; primary-coverts and some of the inner primary-quills, on the basal portion, grey on the outer webs with whitish margins like those of the secondary-quills, the apical portion of the flight-quills blackish, on both webs, margined with greyish-white; middle tail-feathers greyish-brown, the outer ones blackish tipped and edged on the inner webs with greyish-white and along the outer web of the outermost feather on each side; lores and feathers surrounding the eye blackish; chin and throat white; fore-neck and breast pale grey indistinctly barred with white; abdomen, lower flanks, vent and under tail-coverts white like the axillaries, under wing-coverts, and inner margins of quills below, remainder of quill-lining greyish-brown; lower aspect of tail also greyish-brown paler and inclining to whitish at the tip. Eyes, bill and feet black. Total length 280 mm.; culmen 21, wing 151, tail 119, tarsus 25. Figured. Collected at Utingu, Cape York, North Queensland, on the 12th of May, 1911.

Adult male. Similar to the adult female.

Adult male. General colour of the upper-parts pale slate-grey including the top of the head, sides of the face, sides of neck, hind-neck, entire back, upper tail-coverts, scapulars, upper wing-coverts and outer aspect of flight-quills; bastard-wing, primary-coverts and inner webs of flight-quills smoke-brown or blackish with broad white margins to the last; tail-feathers blackish with more or less white at the tips and with a slight tinge of grey on the middle ones towards the base; lores and feathers in front and below the eye blackish; the feathers that cover the nostrils dark slate-grey; throat and entire under-surface white including the axillaries, under wing-coverts, and inner margins of the quills below; remainder of quill-lining pale greyish-brown; lower aspect of tail dark greyish-brown. Bill and feet black, eyes brown. Wing 148 mm.; culmen 21, tail 97, tarsus 28. Collected on Parry's Creek, North-west Australia, on the 31st of August, 1908, and is the type of *C. h. parryi*.

Adult female. Similar to the adult male.

Immature. Upper-surface pale smoke-brown with whitish fringes to the feathers and more or less slate-grey intermixed; lesser upper wing-coverts slate-grey; bastard-wing, primary-coverts and flight-quills blackish margined with white; much more broadly on the inner webs of the last towards the base; middle tail-feathers dark grey, the outer ones blackish, becoming whitish at the tips and along the inner edges; lores and feathers in front of the eye blackish; hinder cheeks slate-grey; throat and entire under-surface white, including the axillaries, under wing-coverts and inner margins of quills below; remainder of quill-lining pale greyish-brown; lower aspect of tail similar but darker. Eyes brown; feet and tarsi leaden-blue; bill black, lower mandible brown. Figured. Collected on Melville Island, Northern Territory, on the 16th of November, 1911.

Nest. Nearly flat. Composed of grass and small twigs held together with cobweb. Outside dimensions 4 to 4½ inches by 2 deep. Inside 3 by 1 deep.

Eggs. Clutch, two. Ground-colour bluish-green, blotched with different shades of umber and purplish. 27-28 mm. by 20.

Breeding-season. October to January.

ONE of the Northern species described by Gould, who wrote: "This species inhabits the neighbourhood of Port Essington, where it is a very familiar

WHITE-BELLIED CUCKOO-SHRIKE.

bird, constantly flitting about the branches overhanging the houses of the settlement. In its general habits, manners, and note it closely assimilates to the *Graucalus melanops*. It is abundant in every part of the Cobourg Peninsula, and is generally seen in small families of from four to ten or twelve in number. The whiteness of the under-surface serves to distinguish this from all the other species of the genus yet discovered in Australia. The stomach is muscular, and the food consists of insects of various genera, which are generally taken from the leafy branches of the highest trees. The sexes assimilate very closely in colouring, and only differ in the females, and young males having the lores of a dull brown instead of black."

Mr. J. P. Rogers wrote, regarding this species on Melville Island: "Cooper's Camp, Nov. 20, 1911: These birds are very numerous and are one of the common birds of the island. Dec. 10, 1911: This species is still numerous, and has bred lately, as three birds in young plumage were procured. Jan. 13, 1912: 10 miles south-east of Snake Bay (north side of the Island). Not so numerous as at Cooper's Camp, still they are fairly common. Feb. 5, 1912: Cooper's Camp. This species appears to be stationary here, as they are still very numerous."

Hill has stated: "Fairly numerous on the mainland and islands. Their food consists principally of large caterpillars and *Mantidæ*."

Barnard has recorded that at Cape York it was "fairly plentiful in forest country, where it was found breeding, several nests being observed, mostly containing young. Habits resemble those of the other members of the *Coracina* family. The species was very shy, and seemed to migrate south, as shortly after my arrival none was to be seen. I have also noted the species on the Dawson River, where it was only an occasional visitor."

Macgillivray noted: "Seen only at Cape York, where they were most numerous down towards the Jardine River, and were present all the year round. The nest in the early summer months, in open forest. Stomach contents, large winged insects and caterpillars."

At the McArthur River, Northern Territory, Barnard found them "fairly plentiful; were breeding in December"; while from King River H. L. White recorded McLennan's notes: "Occasionally met with in forest country and in mangroves. 5/1/16. Nest containing two eggs found. Stomach, insect remains."

Campbell and Barnard record this species from North Queensland, stating: "The smaller Cuckoo-Shrike seen was not *G. mentalis*, as Broadbent indicates, although that species may possibly be found at other periods of the year. It is a variety of *hypoleuca*, and agrees with the subspecies *stalkerii* of Mathews."

Campbell later added in connection with specimens from King River:

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"Same as McArthur River birds, which do not differ from North-west specimens (*parryi* Mathews). North Queensland specimens have more grey on the breast, for which Mathews has suggested the name *stalker*i."

Still later, writing of birds from Torres Straits Islands, Campbell observed: "This species is found in New Guinea, also the Solomons (examples from both localities are in the National Museum, Melbourne). It does not appear to vary from North Australian birds. Specimens from all localities appear to have more or less a greyish tone on the breast. Seen a few times."

This would agree with Hartert's conclusion, as he considered the Northern Australian birds to be simply subspecies of the New Guinea species *G. papuensis*, and the Solomons form was named *G. elegans* by Ramsay.

The differences observed in the specimens seem to be of specific value in this group, and therefore I retain the name *hypoleucus* as the species name of the Australian birds.

In 1912 I distinguished:

*Coracina hypoleuca stalker*i

from Cooktown, Queensland, stating that it differed in its slightly smaller bill and in having a distinct greyish band on the breast. Culmen 19 mm., wing 153 mm.; typical culmen 23 mm., wing 145 mm."

From Melville Island I named:

*Coracina hypoleuca apsley*i

as differing from *C. h. hypoleuca* "in its smaller size and in having a light grey jugulum, and French grey feathers on the tibia."

From Parry's Creek, North-west Australia:

*Coracina hypoleuca parry*i,

on account of its lighter upper coloration.

In my "List of the Birds of Australia" in 1913 I regarded the Melville Island form as doubtfully synonymous of the typical race described from Port Essington.

On account of the acceptance of *Graucalus* as the genus name, the forms may be recorded as:

Graucalus hypoleucus hypoleucus Gould.

Northern Territory.

*Graucalus hypoleucus apsley*i (Mathews) ?

Melville Island, Northern Territory.

*Graucalus hypoleucus parry*i (Mathews).

North-west Australia.

*Graucalus hypoleucus stalker*i (Mathews).

North Queensland.

WHITE-BELLIED CUCKOO-SHRIKE.

Extra-limital forms differ in size and coloration, and more than one species is confused under the name *Graucalus papuensis* by recent writers on New Guinea birds.

Berlepsch (Abhandl. Senckenb. Naturfor. Gesellsch., Vol. XXXIV., p. 64, 1911) recorded the Aru Island bird under the name *Graucalus hypoleucus*, but noted differences and proposed for it, in case the differences proved constant, the name *Graucalus mertoni*.

Order PASSERIFORMES.

No. 493.

Family CAMPOPHAGIDÆ.

GRAUCALUS ROBUSTUS.

LITTLE CUCKOO-SHRIKE.

(PLATE 415.)

Lanius robustus Latham, Suppl. Index Ornith., p. xviii., after May 30th, 1801: New South Wales.

Lanius robustus Latham, Suppl. Index Ornith., p. xviii., 1801.

Corvus melanogaster Latham, *ib.*, p. xxv.: New South Wales.

Graucalus mentalis Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 217, Feb. 17th, 1827: South Coast; Gould, Synops. Birds Austr., pt. iv., pl. 57, 1838; *id.*, Birds Austr., pt. xxxii. (Vol. II., pl. 56), Sept. 1st, 1848; Bonaparte, Consp. Gen. Av., Vol. I., p. 354, 1851; Gould, Handb. Birds Austr., Vol. I., p. 195, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 37, 1879; Ramsay, Tab. List Austr. Birds, p. 4, 1888; Hall, Key Birds Austr., p. 12, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 98, 1901; North, Austr. Mus. Spec. Cat., No. 1, pt. 2, p. 107, 1902; Berney, Emu, Vol. V., p. 20, 1905 (N.Q.); (?) Broadbent, *ib.*, Vol. X., p. 235, 1910 (N.Q.).

Ceblepyris mentalis Rüppell, Mus. Senckenb., Vol. III., pt. i., p. 36, 1839.

Ceblepyris (Graucalus) affinis Rüppell, *ib.*, p. 38: "Vermuthlich New Holland."

Campephaga mentalis Gray, Genera Birds, Vol. I., p. 283, 1846.

Colluricincla concinna Hutton, Cat. Birds New Zeal., p. 15, 1871: New Zealand (accidental).

Colluricincla coccinea Giebel, Thers. Ornith., Vol. III., p. 797, (pref. March) 1877: error for preceding.

Coracina mentalis Mathews, Handl. Birds Austral., p. 68, 1908.

Coracina robusta robusta Mathews, Nov. Zool., Vol. XVIII., p. 327, 1912; *id.*, List Birds Austr., p. 194, 1913.

Coracina robusta mentalis Mathews, Nov. Zool., Vol. XVIII., p. 327, 1912; *id.*, List Birds Austr., p. 194, 1913.

Coracina robusta victoriae Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7th, 1916: Victoria.

DISTRIBUTION. Queensland, New South Wales, Victoria, South Australia.

Adult female. General colour above pale slate-grey including the top of the head, hind-neck, back, upper tail-coverts, scapulars, upper wing-coverts and outer web of secondary-quills, rather paler on the fore-head and upper tail-coverts; bastard-wing, primary-coverts, and flight-quills blackish edged with greyish-white on the



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GRAUCALUS ROBUSTUS.
(LITTLE CUCKOO-SHRIKE).

LITTLE CUCKOO-SHRIKE.

outer webs and margined with pure white on the inner ones ; tail also blackish becoming smoke-brown on the outer feathers, tipped with white which is much more extensive on the lateral feathers ; base of fore-head, rictal bristles, lores, eyelids and feathers below the eye black, posterior portion of eyelids white ; ear-coverts rather darker than the crown ; chin whitish ; throat, breast, sides of body, and thighs paler slate-grey ; lower flanks, vent, under tail-coverts, axillaries, under wing-coverts, and inner edges of quills below white ; under-surface of flight-quills greyish-brown ; lower aspect of tail also greyish brown with white at the tips and along the inner margins of the feathers. Bill and feet black, eyes dark brown. Total length 300 mm. ; culmen 20, wing 165, tail 133, tarsus 30. Figured. Collected at Gosford, New South Wales, in May 1894.

Adult male. Similar to the adult female.

Immature. Crown of head, back, scapulars, upper wing-coverts, outer webs of the inner secondaries and upper tail-coverts pale slate-grey ; the long upper tail-coverts have minute dark marks near the tips ; bastard-wing and primary-coverts blackish with pale edges to the outer webs ; flight-quills blackish with pale edges to the outer webs and white margins to the inner ones ; middle tail-feathers greyish-brown, the outer feathers inclining to blackish with greyish-white tips ; the base of the fore-head rather paler than the crown with minute blackish spots to the feathers ; lores and sides of the face including the ear-coverts black ; chin and throat grey with dark centres to the feathers ; fore-neck black with narrow grey fringes to the feathers ; breast, sides of body, and upper-abdomen greyish-white barred with dark brown ; lower-abdomen, flanks, vent, and under tail-coverts white like the axillaries, under wing-coverts and margins of the quills below ; remainder of quill-lining greyish-brown ; lower aspect of tail also greyish-brown with pale margins and whitish tips to the feathers. Figured. Collected at Albury, New South Wales, on the 5th of July, 1904.

Immature male. Entire head, throat, and neck all round black ; back, scapulars, upper wing-coverts and upper tail-coverts slate-grey, some of the last marked with black at the tips ; bastard-wing and primary-coverts smoke-black with slightly paler edges to the outer webs ; flight-quills (in moult) the old feathers dark smoke-brown and the new ones blackish with whitish margins in each case, the outer webs of the innermost secondaries slate-grey ; tail blackish with white tips to the feathers and along the outer web of the outermost feather on each side, the middle feathers more or less grey on the basal portion ; lower breast, abdomen, sides of body, and thighs greyish-white, irregularly marked with dark smoke-brown ; vent, under tail-coverts, axillaries, and under wing-coverts and inner margins of quills below cream-white ; remainder of quill-lining greyish-brown ; lower aspect of tail similar but somewhat darker and with whitish margins and tips to the feathers. Figured. Collected in Victoria in March 1873 ; is very similar to the type drawing of *Lanius robustus* Latham, and is figured for this reason.

Nest. Nearly flat structure. Composed of grass, twigs, etc., held together with cobweb. Outside dimensions 4 inches by $1\frac{1}{2}$ deep. Inside 3 by $\frac{1}{2}$ deep.

Eggs. Clutch, two or three. Ground-colour different shades of green blotched with different shades of umber or purplish. 30-31 mm. by 20.

Breeding-season. August to December.

THE first note of this species appears to be the description by Latham of his Robust Shrike, based on one of "Lambert's" drawings. These drawings

THE BIRDS OF AUSTRALIA.

are better known as the Watling paintings, and when a set came into the possession of the British Museum (Natural History) a report was drawn up by Sharpe, and published in the History of the Collections. Therein he determined the painting No. 28 as applicable to the bird known at that time as *Graucalus melanops*, and as the name founded on painting No. 28, *Lanius robustus*, was six pages earlier than *Corvus melanops*, also founded on another Watling drawing, and which was undeniably referable to the Small-billed Cockoo-Shrike, it should supersede the better known name. Fortunately, an error had been made and I recognised that Latham's *L. robustus* belonged to the species now under review, and I made the necessary correction. I have said "fortunately" as the former was the commoner bird and the name *melanops* was well established; but, as I have just shown, this proved of no avail, as there was an even earlier valid name for the species *melanops*.

The alteration to *robustus* for the present species and the rejection of the well-known *mentalis* given by Vigors and Horsfield cannot be gainsaid, as Latham's *Corvus melanogaster* is also applicable and also earlier than *mentalis*. When Vigors and Horsfield proposed the latter name in their Essay on the Australian Birds in the Linnean Society's Collection they were a little puzzled, as their note states: "The bird described above exhibits so many points of distinction from the preceding species that we have ranked it as separate. Its locality also, which is different from that of the other species, serves to strengthen us in this opinion. The chief difference consists in the inferior size of our bird, all the specimens we have seen of the former species being about thirteen inches in length; in the darkness of the ash colour on the back; in the narrowness of the frontal band, and particularly in the white colour of the *mentum*. There is, however, much variation, as is alleged, in the *Grauc. melanops* and *Papuensis*; and it may happen that our bird is but the young of one of those species. Our specimen was found on the South Coast by Mr. Brown in 1803."

When Gould dealt with this species he queried that it might be *Lanius robustus* of Latham, though writing about it under the heading *Graucalus mentalis* Vigors and Horsfield, thus: "New South Wales, or the south-eastern division of Australia, is the native habitat of the present species; it is by no means a rare bird in the Upper Hunter and all similar districts, yet I did not succeed in finding its nest and eggs; they are, therefore, desiderata with me. There is no one member of the family to which it belongs which undergoes so many changes of plumage as the present species, and is consequently very puzzling to the ornithologist. In extreme youth, or during the first few months after it has left the nest, the throat, chest, and back of the neck are jet-black, while the breast and abdomen are rayed with obscure arrow-shaped

LITTLE CUCKOO-SHRIKE.

markings of the same colour on a greyish-white ground ; from this state individuals in every variety of change, to the uniform grey throat and head, with black lores and mark under the eye are to be met with. Independently of a difference in its markings, its much smaller size will at all times serve to distinguish it from *Graucalus melanops*, which inhabits the same districts. Insects of various orders and caterpillars, which are either captured on the wing or taken from the branches, form its diet."

Captain S. A. White states : " I have seen this bird both in New South Wales and Victoria, but have only once seen the South Australian form, and until that time I doubted its existence."

Mr. Edwin Ashby notes : " This bird appears to be scarce in South Australia, but I think it is often overlooked."

Mr. Thos. P. Austin, writing from Cobbora, New South Wales, states : " The Little Cuckoo-Shrike is a very rare visitor during the spring and summer months. What few birds I have seen here appear to spend most of their time in the topmost branches of the larger trees, mostly eucalyptus, along the banks of the Talbragar River, where it quietly hops about gathering its food, then suddenly darting out to capture some passing insect. Although I have known them to remain here during the breeding-season, I have never seen a nest, but I am of the opinion that a few pairs have bred here."

Berney has recorded that in the Richmond district, North Queensland, it is " very seldom seen. They were here in the river timber in June 1902 and again in August 1904. When about, their cry, ' Kiseek, kiseek ' is easily heard, and cannot possibly be mistaken. The stomach of one I obtained on the Campaspe River contained grasshoppers and beetles."

Broadbent wrote : " Cardwell is the true habitat of this bird. Here all the year round." But Campbell suggests this may be a mistake and that the species intended is the preceding one.

As a synonym I have included *Ceblepyris* (*Graucalus*) *affinis* Rüppell, Mus. Senckenb., Vol. III., pt. 1., p. 38, 1839, the type locality of which is given as " Vermuthlich New Holland." The description seems to apply to an immature of this species, and the name was overlooked by Hartert when he prepared the Catalogue of the Senckenburg Museum in 1891, but on page 91 he entered a juvenile specimen of *G. mentalis*, which may have been the specimen described by Rüppell.

It will be seen little has been recorded regarding this species, apparently on account of its similarity to the commoner one.

In 1912 I listed two subspecies under the names *Coracina robusta robusta* and *Coracina robusta mentalis*, and these were admitted in my 1913 "List."

THE BIRDS OF AUSTRALIA.

I later indicated the Victorian form as being larger and these three may be recognised thus :—

Graucalus robustus robustus (Latham).

Queensland, New South Wales.

Graucalus robustus victoriæ (Mathews).

Victoria.

Graucalus robustus mentalis (Vigors and Horsfield).

South Australia.

GENUS—PARAGRAUCALUS.

PARAGRAUCALUS Mathews, Austral Av. Rec.,
Vol. II., pts. 2 and 3, p. 58, October 23rd,
1913. Type (by original designation): *Ceblepyris lineatus* Swainson.

I WROTE: "Differs from *Coracina* Vieillot (i.e. *Graucalus*) in its weaker bill, shorter tail, and weaker feet."

The bill is shorter than the head, narrower proportionately than in the preceding, the tip less sharply decurved.

The wing has the first primary very narrow and short, less than half the second which is longer than the sixth, but shorter than the fifth, while the third is longest, with the fourth a little short, the third, fourth and fifth being almost subequal.

The tail is a little emarginate, shorter, about two-thirds the length of the wing with the feathers much broader than in the preceding genus and the tail-coverts rather short.

The legs are a little longer proportionately, and show about the same number of scutes, and the toes are similar.

Coloration: dark grey above, wings and tail black; below: throat dark grey, rest of under-surface greyish with close narrow black bars. Sexes alike; immature, little different.

This generic type also occurs extra-limitally with little variation in form and coloration.

PARAGRAUCALUS LINEATUS.

BARRED CUCKOO-SHRIKE.

(PLATE 416.)

CEBLEPYRIS LINEATUS Swainson, Zool. Journ., Vol. I., p. 466, Jan. 1825 : "Australia" = Queensland (Moreton Bay).

Ceblepyris lineatus Swainson, Zool. Journ., Vol. I., p. 466, 1825.

Graucalus swainsonii Gould, Synops. Birds Austr., pt. iv., pl. (57), April 1838 : new name for *C. lineatus* Swainson ; *id.*, Birds Austr., pt. xxiii. (Vol. II., pl. 58), June 1st, 1846 ; Bonaparte, Consp. Gen. Av., Vol. I., p. 354, 1851 ; Gould, Handb. Birds Austr., Vol. I., p. 197, 1865 ; Ramsay, Ibis, 1865, p. 84.

Campephaga lineata Gray, Genera Birds, Vol. I., p. 283, 1848.

Campephaga swainsonii, Finsch, Neu Guinea, p. 171, 1865.

Graucalus lineatus Ramsay, Proc. Lin. Soc. N.S.W., Vol. II., p. 180, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 40, 1879 ; Ramsay, Tab. List. Austr. Birds, p. 4, 1888 ; Hall, Key Birds Austr., p. 12, 1895 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 99, 1901 ; Broadbent, Emu, Vol. X., p. 235, 1910 (N.Q.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 25, 1917 (N.Q.) ; Macgillivray, *ib.*, p. 200 (N.Q.)

Coracina lineata Mathews, Handl. Birds Austral., p. 68, 1908 ; H. L. White, Emu, Vol. XV., p. 62, 1915 (*re* North's omission).

Coracina lineata lineata Mathews, Nov. Zool., Vol. XVIII., p. 327, 1912.

Paragraucalus lineatus lineatus Mathews, List Birds Austr., p. 194, 1913 ; *id.*, South Austr. Ornith., Vol. II., pt. 3, p. 57, 1915.

Paragraucalus lineatus austini Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7th, 1916 : New South Wales.

DISTRIBUTION. Queensland ; New South Wales (south to Lithgow).

Adult male. General colour slate-grey including the crown of the head, entire back, upper tail-coverts and upper wing-coverts ; the feathers on the lower back and sides of back silky white tipped with slate-grey ; bastard-wing black narrowly edged with whitish ; primary-coverts slate-grey with dark shaft-lines ; flight-quills black edged with grey on the outer webs margined with white on the inner ones ; middle tail-feathers very dark slate-grey and tipped with black, the outer feathers entirely black ; base of fore-head and lores black ; sides of face, throat, upper-breast and fore-part of thighs slate-grey like the upper-surface ; lower-breast, abdomen, hinder portion of thighs, and under tail-coverts barred with black and white like the axillaries and under wing-coverts ; under-surface of flight-quills



H. Gronvold, del

Witherby & Co

PARAGRAUCALUS LINEATUS.
(BARRED CUCKOO-SHRIKE.)

BARRED CUCKOO-SHRIKE.

slate-grey with whitish margins ; lower aspect of tail dark slate-grey. Eyes pale yellow, bill and feet black. Total length 258 mm. ; culmen 17, wing 148, tail 103, tarsus 27. Figured. Collected at Kuranda, near Cairns, North Queensland, on the 24th of January, 1913. The sexes are alike.

Adult female. Similar to the adult male.

Adult male. General colour of the upper-surface slate-grey with dark shaft-lines to the feathers including the top of the head, back, scapulars and upper wing-coverts, the greater series darker than the back and margined with pale grey ; bastard-wing and primary-coverts blackish margined with white ; flight-quills also blackish margined with pale grey on the outer webs and much more broadly with white in the inner webs ; upper tail-coverts rather paler than the back and narrowly tipped with whitish ; tail blackish, paler on the outermost feather on each side which is slightly tipped with white ; lores and feathers in front of the eye black ; sides of face like the back ; chin, throat, and fore-neck pale slate-grey barred with whitish ; breast, abdomen, sides of body, and thighs barred with blackish-brown or grey ; under tail-coverts, axillaries, and under wing-coverts white barred or otherwise marked with dark or pale grey ; under-surface of flight-quills pale brown with white margins ; lower aspect of tail greyish-brown. Bill and feet black, eyes pale yellow. Total length 240 mm. ; culmen 17, wing 139, tail 100, tarsus 25. Figured. Collected at Piara, Cape York, North Queensland, on the 24th of August, 1913.

Immature female. General colour of the upper-surface ash-grey including the top of the head, sides of face, entire back, and upper wing-coverts ; bastard-wing and primary-coverts blackish edged with white on the outer webs ; flight-quills also blackish, margined with white on both webs but more broadly on the inner ones ; rump and upper tail-coverts minutely barred with white and a dark subapical mark on the long upper tail-coverts ; tail dark brown, the feathers slightly tipped with white ; lores and feathers in front of the eye blackish ; chin, throat, and upper-breast ash-grey, barred with white ; lower-breast, abdomen, sides of body, vent and under tail-coverts cream-white with dark wavy cross-bars which become more sparsely on the vent and under tail-coverts ; thighs slate-grey with whitish tips to the feathers ; axillaries, under wing-coverts and inner margins of quills below cream-white, remainder of quill-lining and lower aspect of tail greyish-brown. Collected at Broadwater, Northern New South Wales, on the 25th of November, 1906.

Nest. Shallow open structure, composed of twigs, rootlets, etc., held together with cobweb. Outside measurements $3\frac{1}{2}$ inches by $2\frac{1}{2}$ deep. Inside $2\frac{1}{2}$ by $\frac{3}{4}$ deep.

Eggs. Clutch, two. White, spotted, more at the larger end where a zone is formed, with brown and lavender ; 30 mm. by 22.

Breeding-season. October to January.

THIS beautiful species was described by Swainson under the name *Ceblepyris lineatus*, and later Gould changed the name to *Graucalus swainsonii*, as he concluded that Swainson's specific name was untenable. Under the present rules this is not so, and we must use Swainson's name.

Gould wrote : " Examples of this species occur in almost every collection sent from Moreton Bay. I regret to add that it is one of the few birds I had no opportunities of observing in a state of nature, and that little is at present known of its habits and economy, beyond what is stated in the following note which was sent to me by the late F. Strange : ' During the summer months

THE BIRDS OF AUSTRALIA.

this species feeds exclusively on the wild figs, in company with members of the following genera, *Ptilonorhynchus*, both species, *Sericulus*, *Scythrops* and *Carpophaga*, with all of which it seems to be quite familiar, but does not appear to mix with the other species of its own genus, all of which are strictly insectivorous. A female shot on the 24th of November contained a fully developed egg.' Judging from the specimens I have examined, I believe that the sexes are alike in plumage."

Broadbent simply noted it from the Cardwell district without comment.

Campbell and Barnard added little more in their account: "As a general rule, northern scrub species are smaller in size or are brighter in plumage than southern birds of the same kind. So it is with the Barred Cuckoo-Shrike, which, in the Murray district, is clearer (brighter) in appearance and has the under-surface more distinctly barred. For the northern form Mathews recently applied the name *austini*. These birds were not observed till we reached the Murray River, when they were noticed passing in small flocks from the north, evidently going farther south, though some of them remained during our visit. If there be a difference between the skins secured and the southern form, then the southern bird is either a stationary species or migrates farther south in the spring, while the northern bird takes its place in the centre. Mathews omits the range of this bird to New South Wales."

The restricted range of this species in Australia, viz., Queensland and northern New South Wales, has obscured our knowledge of its life-history, as shown in the few notes available. As admitted by Campbell, the southern birds from New South Wales are easily separable by their less distinct barring on the under-surface, and when I received such I named the race and added that locality. So that two Australian races are recognisable:

Paragraucalus lineatus lineatus (Swainson).

Queensland.

Paragraucalus lineatus austini Mathews.

New South Wales.

The extra-limital forms in this case seem to be subspecific only.

GENUS—METAGRAUCALUS.

METAGRAUCALUS Mathews, Austral Av. Rec.,

Vol. II., pts. 2-3, p. 59, Oct. 23rd, 1913.

Type (by original designation) ... *Graucalus tenuirostris* Jardine.

THE diagnosis reads: "Differs from *Edolisoma* Jacquinot et Pucheran in its stronger bill, stronger legs and feet, different wing formation, and entirely different coloration."

The bill is longer and thinner than in any of the preceding genera, the rictal bristles insignificant, the frontal feathers covering the nostrils as usual.

The wing has the first primary very short and narrow, about half the length of the second, which exceeds the sixth in length; the third and fourth are longest and about equal but the fifth is only a little less. The tail has broad feathers, square and about two-thirds the length of the wing.

The feet are more slender, the tarsus booted, only a little longer than the culmen, the toes formed as in the preceding but more delicate.

Coloration: Sexes entirely different. The male is dark grey throughout, the wings and tail black, some of the feathers edged with grey.

The female is brownish-grey above with the rump indistinctly barred, the secondaries edged with reddish; the under-surface buffish to greyish-white irregularly and sometimes indistinctly barred with narrow black cross-bars. Immature like female.

Why this species was ever placed in *Edolisoma* is not easily understood, as the male of the type species (*marescoti*) is black throughout, while the female is uniform brownish-red above and pale buffish-yellow below. The bill is of a different shape, the wing is rounded, the first primary longer, the others shorter, the legs differ, the tail is not like, etc., etc.

Order PASSERIFORMES.

No. 495.

Family CAMPOPHAGIDÆ.

METAGRAUCALUS TENUIROSTRIS.

CATERPILLAR-CATCHER.

(PLATE 417.)

GRAUCALUS TENUIROSTRIS Jardine, Edinb. Journ. Nat. Geogr. Sci. (N.S.), Vol. III., p. 211, April 1831: "New Holland = New South Wales.

Graucalus tenuirostris Jardine, Edinb. Journ. Nat. Geogr. Science (N.S.), Vol. III., p. 211, 1831.

Ceblepyris jardinii Rüppell, Mus. Senckenb., Vol. III., p. 30, 1839: new name for *G. tenuirostris* Jardine.

Campephaga jardinii Gould, Birds Austr., pt. XXXIII. (Vol. II., pl. 60), Dec. 1st, 1848; Bonaparte, Consp. Gen. Av., Vol. I., p. 353, 1851; Gould, Handb. Birds Austr., Vol. I., p. 200, 1865; Ramsay, Ibis, 1865, p. 84; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878.

Campephaga tenuirostris Gray, Genera Birds, Vol. I., p. 283, 1848.

Graucalus jardinei Hartlaub, Journ. für Orn., 1864, p. 441.

Edoliisoma jardinei Salvadori and D'Albertis, Ann. Mus. Civ. Genova, Vol. VII., p. 927, 1875, (?) 1876; Macgillivray, Emu, Vol. XIII., p. 170, 1914 (N.Q.); H. L. White, *ib.*, Vol. XVI., p. 224, 1917 (N.T.); Campbell and Barnard, *ib.*, Vol. XVII., p. 26, 1917 (N.Q.); Macgillivray, *ib.*, p. 200, 1917 (N.Q.); Campbell, *ib.*, Vol. XX., p. 61, 1920 (N.Q.)

Edoliisoma tenuirostre Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 55, 1879; Ramsay, Tab. List Austr. Birds, p. 5, 1888; Hall, Key Birds Austr., p. 12, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 100, 1901; North, Austr. Mus. Spec. Cat., No. 1, pt. 2, p. 113, 1902; Mathews, Handl. Birds Austral., p. 68, 1908; Broadbent, Emu, Vol. X., p. 235, 1910 (N.Q.); Hill, *ib.*, p. 277, 1911 (N.W.A.).

Coracina tenuirostris tenuirostris Mathews, Nov. Zool., Vol. XVIII., p. 328, 1912.

Coracina tenuirostris obscura Mathews, *ib.*, Jan. 31st, 1912: Cairns, Queensland.

Coracina tenuirostris melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 43, April 2nd, 1912: Melville Island, Northern Territory.

Metagraucalus tenuirostris tenuirostris Mathews, List Birds Austr., p. 195, 1913.

Metagraucalus tenuirostris obscurus Mathews, *ib.*

Metagraucalus tenuirostris melvillensis Mathews, *ib.*

DISTRIBUTION. Queensland, New South Wales, Victoria, Northern Territory and North-west Australia.



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METAGRAUCALUS TENUIROSTRIS
(CATERPILLAR-CATCHER.)

CATERPILLAR-CATCHER.

Adult male. General colour on both the under- and upper-surface slate-grey; median and greater upper wing-coverts black fringed with slate-grey on the outer webs; bastard-wing and primary-coverts black; flight-quills also black fringed on the outer webs with slate-grey and broadly margined with white on the inner ones; middle tail-feathers slate-grey with a black spot at the tip which is narrowly edged with grey, the outer feathers black tipped with slate-grey; sides of face, including the lores and ear-coverts black; under-surface of flight-quills white at the base and blackish on the apical portion; lower aspect of tail blackish with slightly paler tips to the outer feathers. Eyes dusky, bill, feet and legs black. Total length 243 mm.; culmen 20, wing 131, tail 97, tarsus 25. Figured. Collected near Cairns, North Queensland, in October 1911.

Adult female. General colour of the upper parts ash-grey including the top of the head, sides of the face, hind-neck, entire back, upper tail-coverts, scapulars and upper wing-coverts, the greater series of the last fringed with white and inclining to brown on the outer feathers; bastard-wing blackish narrowly edged with white; primary-coverts blackish-brown fringed with grey which becomes paler and inclining to white at the tips; flight-quills blackish fringed with white, much more broadly on the inner webs; the feathers of the rump and upper tail-coverts fringed with greyish-white at the tips; middle tail-feathers greyish-brown narrowly edged with whitish at the tips, which becomes more extensive on some of the lateral feathers, some of the outer feathers darker and inclining to blackish; lores and feathers in front of the eye inclining to black; chin, throat, and upper-breast grey with indications of greyish-white bars; lower-breast and sides of body whitish with narrow blackish cross-bars, some of which are slightly acuminate in the middle of the feathers, these bars become almost obsolete on the abdomen and under tail-coverts; thighs grey with whitish tips to the feathers; axillaries, and under wing-coverts white with a few grey dots on the marginal coverts; under-surface of flight-quills greyish-brown with whitish inner margins; lower aspect of tail grey with white shafts and more or less white at the tips of the feathers. Eyes black; feet slate. Bill blackish, with lower base brown. Wing 127 mm. Figured. Collected at the Cable Station, Cape York, North Queensland, on the 18th of April, 1913.

Nestling. "Feathers of the upper-parts brown, slightly darker on the head and all largely tipped with white; wings dark brown, the secondaries broadly edged with light rufous, tail-feathers buff, with blackish cross-bars; all the under-surface dull white, the feathers of the chest and breast with a blackish shaft-line terminating in a tear-shaped spot near the tip; bill fleshy-brown; legs and feet pale fleshy-brown." Wing 58 mm. (North.)

Nest. Small and shallow. Composed of fine pieces of bark, twigs, etc., held together with spider's web. Decorated on the outside with pieces of lichen. Dimension outside $3\frac{1}{4}$ inches by 2 deep. Inside 2 by $\frac{1}{2}$ - $\frac{3}{4}$ deep.

Eggs. Clutch, one. Ground-colour greenish or bluish, blotched all over with umber spots or blotches, and some of lavender. 30-32 mm. by 20.

Breeding-season. October to January.

ALMOST exactly the same story as to its early nomination belongs to this species as to the preceding. Jardine named it *Graucalus tenuirostris*, and Rüppell renamed it *Ceblepyris jardinii*, as he considered Jardine's name invalid. It is not so according to our present day usage.

Gould wrote: "The only parts of Australia wherein this species has been observed are Moreton Bay and the Liverpool Range in New South Wales,

THE BIRDS OF AUSTRALIA.

and the Cobourg Peninsula ; it is likely that it ranges over the whole of the intermediate country, but this can only be determined by future research. Its smaller size, the more attenuated form of its bill, and the great difference in the colouring of the sexes, point out most clearly that it is a member of the genus *Campephaga*, and not of *Graucalus*, to which it was first assigned. It is far less common in New South Wales than it is at Port Essington, where Gilbert collected the following particulars respecting it : ‘ This bird is extremely shy and retiring in its habits. It generally inhabits the topmost branches of the loftiest and most thickly foliated trees growing in the immediate vicinity of swamps. Its note is altogether different from that of any other species of the genus, being a harsh, grating, buzzing tone, repeated rather rapidly about a dozen times in succession, followed by a lengthened interval. It appears to be a solitary species, as I never saw more than one at a time.’ The stomach is muscular, and the food consists of insects of many kinds, but principally coleoptera.”

Mr. L. G. Chandler has written me : “ My experience of this species has been entirely in the thickly timbered ridges of the Dandenong Ranges, Victoria. They do not stop to winter, as far as my observation goes, though being a very rare bird one might easily overlook them. They feed on the tops of the gum trees and appear to catch an insect on the leaves, or by taking a short flight and pouncing on it ; a large cicada is often chosen as an article of diet. The call of the male bird is a high-pitched ‘ Kree, Kree,’ that is uttered quickly in repetition for no particular length of time. I think the note is given, on an average, about twenty times in succession. There is usually a five to ten minutes’ interval between the calls, although occasionally the bird may be silent for over an hour. It is generally rather difficult to secure a specimen. A bird may call somewhere and you reach the spot you thought the notes originated from, and eagerly scan the branches. In ten minutes the call may come from a tree two hundred yards away. It commences softly and slowly, gains power, then dies away. If one is close to the bird the opening notes lead one to believe it is some distance away.”

Mr. F. E. Howe has also sent me a note : “ This bird is more often heard than seen when the loud buzzing cicada-like notes betray its whereabouts. They have another call, uttered three or four times quickly and sounding like ‘ Joey-Joey.’ Watching a pair at Ringwood, Nov. 1, 1908, they appeared to be nesting, but the spot was not again visited. At Ferntree Gulf, Nov. 22nd, I was amazed at the number of cicadas that were devoured by a male bird. Seizing the locust it would fly to a limb and, after beating it on the bough a few times, would devour the lower half. Picking up the portion dropped, it was seen that the creature was still alive although minus the abdominal half.”

CATERPILLAR-CATCHER.

Mr. J. W. Mellor writes: "I saw this bird in New South Wales, at the Tuggerah Lakes between Newcastle and Sydney, where on Dec. 10, 1904, I found a nest with the usual single egg. I also saw these birds on North-West and Tryon Islands in the Capricorn Group, off the Queensland coast."

Campbell has some good notes on the nest-finding of this species, and wrote: "We observed that the male bird possessed a song or call-note resembling the pulsating sound of a large cicada singing. The alarm-notes of both male and female are a Parrot-like 'tweet-tweet-tweet,' or 'wheet-wheet-wheet,'" and gave records of a series of egg-robbing experiments by Shepherd, with the conclusion "that the time taken to build and lay another egg averaged between ten and eleven days (actual intervals, twelve, ten, nine, twelve, eleven days respectively). Both birds aided in the construction of their nest."

Broadbent observed that it was "common about Cardwell."

Macgillivray stated only: "Frequents the open forest country at Cape York, where it is fairly common."

McLennan's notes, as given by H. L. White, read: "King River, 16/11/15: A single bird seen. 28/11/15: Number of birds calling in mangroves. Continued fairly plentiful in mangroves, scrub and forest, till I left the district. Stomach contained pale green caterpillars."

Campbell and Barnard's notes from North Queensland read: "As in the case of the Barred Cuckoo-Shrike, this bird was slightly smaller and of cleaner appearance than specimens obtained in southern localities. Can this migratory species be scientifically subdivided? If so, what are the respective bounds of the so-called subspecies of Mathews? If *jardinii* (or *tenuirostris*) of South Queensland migrates to New South Wales or to Victoria to breed, where does *obscurus* of North Queensland migrate to to nest. It does not remain in Central Queensland during the winter, but arrives from the north in October."

The confusion in Campbell's mind is seen in the next quotation dealing with birds from the Torres Straits Islands: "Smaller size generally (wing 120 mm.), and shows less striations on the under-surface than does a female from Richmond River, New South Wales (wing 130 mm.). A male from Port Moresby, New Guinea, is similar to a male obtained by Mr. H. G. Barnard and myself at Cardwell. There are in the National Museum collection a female and a male, showing a transition stage of plumage, from the Solomon Islands. The species is a migrant to New South Wales and Victoria, and eggs have been taken as far south as Western Port. Mr. McLennan first heard this Caterpillar-eater calling near some mangroves, 18/12/19, and procured the female above mentioned 12/1/20."

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What the Solomon Islands birds might be cannot be determined without examination, but this species does not occur, as far as is known, on that group, while very distinct species, not easily confused, do occur there, and the fact that Campbell's notes refer to a "transition stage of plumage" is perplexing.

Mr. J. P. Rogers's notes from Melville Island read: "Cooper's Camp, Nov. 20, 1911: Occasionally a pair is seen but is decidedly rare. This is the first time I have seen this species and after hearing the peculiar call am quite sure it is not a resident species either at Parry's Creek, East Kimberley, or in the parts of West Kimberley that I know (East and West Kimberley are about 400 by 300 miles, so that there are many parts I do not know). Dec. 10, 1911: Several are heard every day, but only one female seen to date. Jan. 13, 1912: 10 miles S.E. of Snake Bay. This species is fairly common here. Feb. 5, 1912: Cooper's Camp. Rare here now."

Hill has recorded: "The movements of a few pairs which arrived at Napier Broome Bay on and after 4/12/09 were closely watched until the end of February, when the last of them left the district. During these months the birds were generally to be seen in the topmost branches of the largest trees. Their food appears to consist entirely of large caterpillars."

Three subspecies in Australia may be easily recognised as given in my "List" of 1913, thus:

Metagraucalus tenuirostris tenuirostris (Jardine).

New South Wales; Victoria; South
Queensland.

Metagraucalus tenuirostris obscurus (Mathews).

North Queensland.

Smaller and "of cleaner appearance," as Campbell phrases it, i.e., the barring is more regular and more clearly differentiated.

Metagraucalus tenuirostris melvillensis (Mathews).

Melville Island, Northern Territory.

Separated on account of its very much lighter coloration and more slender bill. The species has been since recorded from King River, Northern Territory, but I have not examined specimens.

GENUS—LALAGE.

LALAGE Boie, Isis, 1826, heft x., col. 973 (October).

Type (by monotypy) *Turdus orientalis* Gmelin
= *Turdus niger* Forster.

Erucivora Swainson, Fauna Bor. Amer. Birds,
p. 483, "1831" = February 1832. Type (by

monotypy) *Turdus orientalis* Gmelin
= *Turdus niger* Forster.

SMALL Campophagine birds with long thin bills, long wings, long rounded tail and long thin legs and feet.

The bill is long, as long as the head, thin, almost laterally compressed when contrasted with those of the preceding genera, the culmen keeled but little basally expanded, the nasal groove small but exposed, the nostrils appearing as small circular holes free from the frontal feathers; rictal bristles obsolete.

The wing has the first primary very short and narrow, less than one-third the length of the second; the second to fifth primaries form the tip of the wing, the fourth longest, the third little shorter not much exceeding the second which is a little longer than the fifth; the secondaries are comparatively rather long.

The tail is long, about three-fourths the length of the wing, the feathers rather broad and the shape a little rounded.

The tarsus is long, nearly twice as long as the culmen, scutellate anteriorly about four broad scutes being recognisable and bilaminate posteriorly; the toes long and thin of the usual Campophagine formation.

Coloration: sexes different and apparently a seasonal change takes place. Adult breeding male, black above, white below, the rump and back grey and the upper wing-coverts white forming a bar. The female is brown above, fawn with small cross-bars below, the rump faintly barred and the wing-coverts are only edged lighter, no bar being formed. In the non-breeding state the male seems to take on the female plumage, which the young also bear.

Order PASSERIFORMES.

No. 496.

Family CAMPOPHAGIDÆ.

LALAGE TRICOLOR.

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(PLATE 418.)

CEBLEPYRIS TRICOLOR Swainson, Zool. Journ., Vol. I., p. 467, Jan. 1825 : "Australia"
= New South Wales.

Ceblepyris tricolor Swainson, Zool. Journ., Vol. I., p. 467, Jan. 1825.

Ceblepyris humeralis Gould, Synops. Birds Austr., pt. iv., App., p. 2, April 1838 : New
South Wales ; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 143, Dec. 1838.

Campephaga humeralis Gould, Birds Austr., pt. xxxiv. (Vol. II., pl. 63), Dec. 1st, 1848 ;
id., Handb. Birds Austr., Vol. I., p. 204, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W.,
Vol. II., p. 181, 1878 ; S. A. White, Emu, Vol. XIII., p. 127, 1914 (S.A.) ;
Macgillivray, *ib.*, p. 170 (N.Q.) ; Barnard, *ib.*, Vol. XIV., p. 44, 1914 (N.T.) ;
H. L. White, *ib.*, Vol. XVI., p. 224, 1917 (N.T.) ; Campbell and Barnard, *ib.*,
Vol. XVII., p. 26, 1917 (N.Q.) ; Macgillivray, *ib.*, p. 201 (N.Q.).

Lalage humeralis Bonaparte, Consp. Gen. Av., Vol. I., p. 355, 1851 ; Cabanis, Mus. Hein.,
Vol. I., p. 60, 1851.

Lalage tricolor Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 92, 1879 ; Ramsay, Tab. List
Austr. Birds, p. 5, 1888 ; Hall, Key Birds Austr., p. 12, 1899 ; Campbell, Nests and
Eggs Austr. Birds, Vol. I., p. 103, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, pt. 2,
p. 117, 1902 ; Hall, Emu, Vol. II., p. 51, 1902 (N.W.A.) ; Carter, *ib.*, Vol. III.,
p. 36, 1903 (M.-W.A.) ; Berney, *ib.*, Vol. V., p. 20, 1905 (N.Q.) ; Mathews, Handl.
Birds Austral., p. 68, 1908 ; Whitlock, Emu, Vol. VIII., p. 179, 1909 (M.-W.A.) ;
Crossman, *ib.*, Vol. IX., p. 87, 1909 (S.W.A.) ; Whitlock, *ib.*, p. 195, 1910 (M.-W.A.) ;
Broadbent, *ib.*, Vol. X., p. 236, 1910 (N.Q.) ; Chisholm, *ib.*, p. 294, 1911 (Vic.) ;
Barnard, *ib.*, Vol. XI., p. 26, 1911 (N.Q.) ; Littler, *ib.*, Vol. XII., p. 278, 1913 (Tas.).

Lalage tricolor tricolor Mathews, Nov. Zool., Vol. XVIII., p. 328, 1912 ; *id.*, List Birds
Austr., p. 195, 1913 ; Belcher, Birds Geelong, p. 247, 1914.

Lalage tricolor indistincta Mathews, Nov. Zool., Vol. XVIII., p. 328, Jan. 31st, 1912 :
Wyndham, North-west Australia ; *id.*, Austral Av. Rec., Vol. I., p. 58, 1912 ; *id.*,
List Birds Austr., p. 195, 1913 ; *id.*, Ibis, 1914, p. 123 ; *id.*, South Austr. Ornith.,
Vol. III., pt. 5, p. 139, 1918 ; Söderberg, Kungl. Svenska Vet. Handl., Band LII.,
No. 17, p. 88, 1918.

Karua leucomela mayi Ashby, South Austr. Ornith., Vol. I., pt. 4, p. 27, Oct. 1914 : Pine
Creek, Northern Territory ; *id.*, *ib.*, Vol. II., pt. 3, p. 72, 1915.

DISTRIBUTION. Australia generally. Not Tasmania, save as an accidental visitor.

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Adult male (breeding plumage). Crown of head, lores, upper back, scapulars and tail glossy black with pale grey bases to the feathers; lower back, rump, and upper tail-coverts grey; inner upper wing-coverts white, the median and greater series longitudinally centred with black, the outer ones, including the bastard-wing and primary-coverts black irregularly and sparsely marked with white, two of the greater coverts fringed with buff; flight-quills also black slightly edged with white on the outer webs, rather wider on some of the secondaries, and much more broadly on the inner webs; tail black with white tips to some of the outer feathers and the central pair slightly fringed with the same colour; sides of face, throat and entire under-surface white including the axillaries, under wing-coverts, and inner margins of the flight-quills below, a slight tinge of cream colour pervades the breast and abdomen; remainder of the quills below blackish; lower aspect of tail also blackish with white tips to some of the outer feathers. Bill black; eyes brown, feet dark slate. Total length 185 mm.; culmen 12, wing 101, tail 75, tarsus 21. Figured. Collected at Daytrap, Victoria, on the 15th of September, 1912.

Adult male (in non-breeding plumage). Similar to the adult female.

Adult female. General colour of the upper-surface pale smoke-brown including the crown of the head, back, scapulars, rump, and upper tail-coverts; the feathers on the crown of the head have dark shaft-streaks, the feathers on the rump and the upper tail-coverts are paler than the upper back; upper wing-coverts blackish with cinnamon-rufous margins to the feathers; bastard-wing, primary-coverts, and flight-quills blackish-brown edged with buffy white, the inner margins cream-white; tail dark brown on the middle feathers which are slightly edged with buff, the lateral feathers blackish tipped with cream-white, the outer web of the outermost feather is entirely cream-white; cheeks and a short eyebrow buff; throat white with minute dark shaft-streaks, cheeks, breast and sides of body straw colour with dark shaft-lines on the breast and obsolete greyish bars on the sides of the body; middle of abdomen and under tail-coverts white; axillaries and under wing-coverts straw colour with a few dark sagittate marks on the margin; flight-quills below pale brown with buffy-white margins; lower aspect of tail blackish-brown with cream-white tips to the outer feathers and along the outermost webs. Upper mandible black, lower base yellow, eyes black, feet blue-black. Total length 172 mm.; culmen 11, wing 97, tail 74, tarsus 23. Figured. Collected at Normanton, North Queensland, on the 16th of May, 1914.

Immature male. Crown of head, hind-neck, upper back, and scapulars cinnamon-brown with dark shaft lines to the feathers; lower back, rump, and short upper tail-coverts olive-grey with whitish fringe to the feathers, the long upper tail-coverts similar but tinged with cinnamon-brown; upper wing-coverts, bastard-wing, primary-coverts and flight-quills blackish brown margined with white, buffy white, or cinnamon, the quills broadly margined with cream-white on the inner webs; tail blackish, the feathers tipped and fringed with white, or buffy white; eyebrow buffy white; throat white; sides of face, and sides of neck buffy white becoming deeper in colour and inclining to fawn on the breast and sides of the body where there is an indication of grey cross-bars; thighs dusky; abdomen, under tail-coverts, axillaries, under wing-coverts and inner edges of quills below cream-white; apical portion of quills below greyish brown; lower aspect of tail blackish with white tips to some of the feathers. Eyes umber, bill blackish with lower base yellow, feet blackish. Collected at Napier Broome Bay, North-west Australia, on the 23rd of April, 1910.

Immature female. General colour of the upper-surface smoke-brown including the crown of the head, ear-coverts, back, scapulars, rump, and upper tail-coverts, somewhat paler on the rump; upper wing-coverts and flight-quills blackish-brown with cinnamon-

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rufous, or buffy white to some of the inner median and greater coverts, the outer greater series, bastard-wing, and primary-coverts blackish more or less margined and tipped with white; flight-quills dark brown slightly edged with whitish on the outer webs and buffy white on the inner ones; middle tail-feathers dark brown fringed with buff, or buffy white, the outer ones blackish and tipped with cream-white; lores dark brown; a slightly indicated eyebrow buff; throat white with minute dark shaft-streaks; cheeks straw colour; breast, and sides of body pale fawn colour with dark streaks and dots on the breast and pale grey cross-bars on the sides of the body; thighs dusky grey; middle of abdomen, vent and under tail-coverts white; axillaries and under wing-coverts buffy white, a few dark brown marks on the margin of the wing; under-surface of flight-quills hair-brown with buffy white margins; lower aspect of tail dark brown with whitish tips to some of the outer feathers. Collected at Normanton, North Queensland, on the 6th of November, 1913.

Immature male. Crown of head smoke-brown with subapical spots and white tips to the feathers; hind-neck and mantle also smoke-brown with whitish tips to the feathers; back, upper wing-coverts, scapulars, and upper tail-coverts coffee-brown fringed with white at the tips of the feathers; median and greater upper wing-coverts blackish-brown fringed with white or buffy white; bastard-wing, primary-coverts, and flight-quills margined with buffy white or fulvous; middle tail-feathers bronze-brown with pale edgings, becoming blackish on the outer feathers some of which are tipped with cream-white, the outermost pair cream-white along the outer webs; sides of face and ear-coverts pale fulvous; throat, breast, abdomen, sides of the body and under tail-coverts white with dark shaft-streaks to the feathers which are somewhat broad on the breast and under tail-coverts and narrow on the throat and abdomen; the fore-neck, breast, and sides of body strongly tinged with pale fulvous; thighs similar but rather darker; axillaries, under wing-coverts and inner margins of quills below cream-white, remainder of quills below pale brown; lower aspect of tail blackish-brown with cream-white tips to some of the outer feathers which colour extends along the outer web of the outermost feather on each side. Eyes dark horn, gape orange, bill upper black, lower orange, feet slate. Collected at Frankston, Victoria, on the 12th of December, 1900.

Immature female. Crown of head, hind-neck, back, upper tail-coverts, and lesser upper wing-coverts earth-brown with dark centres to the feathers on the crown; the upper tail-coverts have subterminal dark bars and whitish tips to the feathers; bastard-wing, median and greater coverts, primary-coverts and flight-quills darker than the back and inclining to blackish-brown, the inner webs of the flight-quills margined with buffy white on the basal portion; the margins of the upper wing-coverts and of the secondary-quills becoming paler on the latter; middle tail-feathers dark brown with pale edges and obsolete cross-bars, the lateral feathers inclining to blackish and broadly tipped with white; base of fore-head, lores, and eyebrow pale buff; chin and throat white like the under tail-coverts; breast, abdomen, and sides of the body pale buff with indistinct bars of greyish-brown; thighs brown; axillaries and under wing-coverts cream colour; quills below greyish-brown; lower aspect of tail blackish with white tips to the feathers. Eyes brown; feet slaty-black, bill blackish-brown, base of lower mandible light yellow. Collected at Horseshoe Bend, Finke River, Central Australia, on the 20th of August, 1913.

Young (just out of nest). General colour of the upper-surface smoke-brown, including the top of the head, back, scapulars, lesser upper wing-coverts, and upper tail-coverts, darker on the crown and paler on the upper tail-coverts, the feathers edged with white, which imparts a barred appearance; median upper wing-coverts dark brown with whitish tips, bastard-wing, greater coverts, primary-coverts, and flight-quills blackish-brown margined with fulvous; tail blackish-brown with pale tips to the

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feathers, the outer feathers cream-white with dark shafts ; a buffy white line over the eye ; ear-coverts greyish-white ; throat, breast, and sides of the body white with dark streaks to the feathers which are wider on the upper-breast becoming narrower on the lower-breast and sides of the body ; abdomen and lower flanks white ; under tail-coverts and under wing-coverts also white with dark shaft-streaks ; lower aspect of tail dark brown, buffy-white on the outer feathers. Eyes black, feet pale grey, bill black, lower mandible yellow. Collected at Normanton, Queensland, on the 6th of March, 1914.

Nestling. General colour of the upper-surface smoke-brown with fulvous edgings to the feathers ; crown of head smoke-brown with pale shaft-streaks to the feathers ; greater upper wing-coverts, bastard-wing, primary-coverts and flight-quills blackish-brown with fulvous margins to the feathers, which are much increased at the base and apical portion of the secondaries, and gives the appearance of pale and dark patches on the wing ; tail blackish-brown with slightly paler edges to the feathers, the outer feather on each side almost entirely cream colour, the next pair margined with the same colour on the outer web ; rectal bristles black ; throat dull white ; breast and abdomen buffy-white with smoke-brown edges to some of the feathers ; under-surface of wing pale brown ; lower aspect of tail white on the outer feathers and blackish-brown on the central ones. Collected on Rottnest Island, off West Australia, on the 10th of August, 1903.

Nest. Shallow, saucer-shaped. Placed on a horizontal fork of a tree. Loosely composed of grass and small twigs, with leaves adhering, no lining. The outside woven together with cobweb and decorated with pieces of bark and cocoons. Outside measurements $3\frac{1}{2}$ inches wide by about 1 to 2 deep. Inside 2 wide by $\frac{3}{4}$ deep.

Eggs. Clutch, 3. Ground-colour bluish-green, heavily blotched with reddish. 21 mm. by 15. (Derby.)

Breeding-season. September or October to January. (July, August-December to March.)

GOULD described this species as *Ceblepyris humeralis*, and under this specific name continually referred to it, overlooking the fact that Swainson had given it a name, using the same generic name a dozen years previously.

Gould's observations read : " This bird occurs in considerable numbers throughout the southern portion of Australia during the months of summer ; it is strictly migratory, arriving in the month of September, and having performed the task of reproduction, departs again northwards in the months of January and February. It is a most animated, lively, and spirited bird, constantly singing a loud and pretty song, while actively engaged in pursuit of insects, which it captures on the wing, among the branches, or on the ground. It commences breeding soon after its arrival, constructing a shallow round nest of small pieces of bark, short dead twigs and grasses interwoven with fine vegetable fibres, cobwebs, white moss, etc., and sometimes a few grasses and fine fibrous roots by way of lining ; it is usually placed in the fork of a horizontal dead branch of the *Angophoræ* and *Eucalypti* and is not easily seen from below. During the early part of the breeding-season the male frequently chases the female from tree to tree, pouring forth his song all the while. In his notes from Western Australia Gilbert says : ' This bird is a migratory

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summer visitant to this part of the country, where it arrives about the beginning of September, after which it is to be met with in considerable numbers among the mountains of the interior, but very rarely seen in the lowland districts. Its powers of flight are considerable, and when excited during the breeding-season the males become very pugnacious, and not only attack each other in the most desperate manner, but also assault much larger birds that may approach the nest. Its usual flight is even, steady and graceful, and while flying from tree to tree it gives utterance to its sweet and agreeable song, which at times is so like the full, swelling, shaking note of the Canary, that it might easily be mistaken for the song of that bird. It is a remarkably shy species, especially the females, which are so seldom seen that I was at first inclined to think they were much less numerous than the other sex, but this I afterwards found was not the case. Their favourite haunts are thickly wooded places and the most secluded spots. The nest is so diminutive that it is very difficult to detect it, and so shallow in form that it is quite surprising the eggs do not roll out when the branch is shaken by the wind. The nests I discovered were placed on a horizontal dead branch of a eucalyptus; they were formed of grasses and contained two eggs. It breeds in the latter part of September and the beginning of October.'

"Gilbert subsequently met with the bird at Port Essington, where also it appears to be migratory, for not a single individual was to be seen from the early part of November to the month of March; females and young birds were very abundant on his arrival in July, but he only met with one old male during his residence in the colony, a period of eight months. The stomach is muscular, and the food consists of insects of various kinds and their larvæ."

Mr. F. E. Howe writes me: "This form is another visitor to Victoria, arriving about September, and mating commences at once. The tiny cup-shaped nest is placed in a thin fork and varies in height from ten to forty feet. Old nests testify to the fact that they visit the same spot year after year; two or three eggs form a clutch and incubation lasts about fourteen days, both birds taking part and feeding each other on the nest. The young are born blind and featherless, and the eyes do not open until they are fully a week old; gape of mouth is orange. Both parents help in feeding the young and the food is obtained from the ground. The call-note of the male is a very pleasant song."

Mr. Edwin Ashby's notes read: "This bird is not uncommon in South Australia; it nests within a few miles of my house at Happy Valley. It chooses a most conspicuous place for a nest, the bare fork of a wattle about four feet from the ground. As far as my observation goes, the male does the whole work of incubation and feeding the young, the latter being fed exclusively

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on green caterpillars. It is curious that, whereas the brown inconspicuous plumage of the female fits her well for the duties of incubation, she should neglect these, leaving them to the conspicuous male. I would like to know whether this is always the case."

Mr. L. G. Chandler's notes follow: "In the spring and summer of 1907 and 1908 these birds were plentiful around Bayswater and Frankston; it was first observed in 1908 on October 7th. Upon arrival several males may be seen actively engaged chasing a female through the trees. When a favourable locality has been chosen for nesting, the birds, throughout the day, keep up a continual din of notes. The male bird when singing on the wing has a peculiar floating flight, that gives it a very graceful appearance. Both sexes attend to the wants of the young ones but they are rather timid in defence of their young, generally keeping ten yards or more away from the intruder, and not attempting to attack him. I watched a female feeding, and she settled on a low bush and searched the branches for insects, then to the next bush, occasionally snapping a passing insect; each time the bird alighted the tail wagged with a perpendicular motion, the body swaying in the process."

Mr. Tom Tregellas also writes: "Their well-known note proclaims their presence in any locality, and they are soon busy with nest building. In my experience both male and female take part in this function, but the male does the greater part. They are absolutely fearless when sitting, and I have been forced to push the bird out of the nest to investigate its contents. When expelled the bird usually perches a short distance away and takes a keen interest in the proceedings. It is entirely an insect feeder, and generally builds its nest in timber adjacent to open country, where it procures all its food, flying backwards and forwards the whole day long in a manner that soon betrays the presence of the nest."

Mr. Thos. P. Austin has written me from Cobbora, New South Wales: "The White-shouldered Caterpillar-eater is strictly migratory, usually arriving in September, some years in vast numbers, while other years only a few may be seen; always remaining to breed, at times very freely, and it is no uncommon thing to see several nests in the same tree. Both sexes assist in the building of the nests, also in the task of incubation. Met with in all classes of country, in this district, but it mostly favours the open forests, where it gathers much of its food upon the ground. The note of the male is a sort of a loud whistling song, generally uttered while flying, the female being more silent. Although very fond of nesting in fruit trees, I have never known it to eat fruit of any kind. The nest is usually placed low down in a horizontal fork, but at times I have seen them placed fairly high up. The nest is a very small, neat, open, shallow structure, composed of plant stems, roots, etc., bound together with

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cobwebs. I have seen nests, in orchards, entirely formed of fallen pear-flower stems, all woven together with spiders' webs. The clutch is just as often two as three, but I have a clutch of four eggs, taken in an orchard here, this being the only instance of a clutch of more than three I have ever heard of. Eggs may be found during the last three months of the year."

Mr. Tom Carter's notes read: "Is generally distributed through West Australia, and to some extent is migratory. It is a winter visitor in the Gascoyne districts, and is also seen after summer rains. The main breeding months are July-August. The small nests are usually built in the centre of a small group of short twigs, growing upwards from a horizontal bough. Several nests were found in July-August, various years, containing eggs or young. About Broome Hill, they make their appearance in August or September, breeding mostly in October, and are rarely seen after the end of November. First appearances were noted on Aug. 15, 1907, Sept. 7, 1908, Sept. 3, 1910. Three were shot on Sept. 21, 1910, but they were not breeding. Fledged young Nov. 12, 1910. Latest noted bird, Dec. 17, 1910."

Mr. J. P. Rogers's notes read: "This species is widely distributed in West Kimberley. I believe many of the birds migrate after the breeding-season, Dec.-March. In Derby, December 1910, this species was very common, and in May 1911 it was rare. It is unusual to see males in full plumage during the cold season, June to August. At Marngle Creek this species was fairly numerous. In June 1900 I camped in a broad valley in the Grant Ranges, West Kimberley; up the centre of this valley were many wattles in full bloom; here these birds were very numerous and fed on the flowering wattles, apparently on insects caught on the blossoms. No adult males were seen amongst these birds, all appeared to be immature, so perhaps the adults migrate elsewhere. At the end of July 1911 this species was still rare at Derby. On Melville Island this species was rare. A good series of notes from Derby may be here reproduced:—Aug. 31, 1908: Not calling now. Sept. 3: Comparatively quiet now, only giving a few notes of its song; in the breeding-season males are very noisy. Oct. 5: Saw male persistently chasing female from tree to tree, uttering a few notes of song. Oct. 28: These birds have still a broken song, only a few notes being given. Nov. 7: The song is improving. Nov. 14: The song is not full yet. Nov. 16: Spend a lot of time on the ground feeding. Nov. 21: Are not very lively at present. Nov. 23: Saw male chasing female from tree to tree-singing all the time. Nov. 25: Many males in full plumage. I believe all adult males leave this district or else there is a seasonal change of plumage. Nov. 28: Many males chasing females. Nov. 29: Birds now very animated and heard in full song. Nov. 30: Birds now in full song and very animated, sailing from tree to tree with wings either

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rigidly extended, or slightly raised, chasing the females or another male and singing all the time they are on the wing. Dec. 1: When feeding on the ground they proceed in a series of jumps. Dec. 15: In full song and apparently breeding, but no nests found."

Berney simply wrote from the Richmond district, North Queensland: "Is with us all the year round, but very much less numerous during the winter."

G. F. Hill recorded from the Kimberley district, North-west Australia: "A small flock in adult male plumage passed over the Mission Station on 7/11/09 flying south, and during the two months following occasional birds were seen travelling in the same direction. From the beginning of January until 22/4/10 none was seen, but on this date I shot one bird from a flock of twelve which flew over in an easterly direction. These and all that were seen subsequently were female birds. On 27/4/10 many birds settled near the station, and their numbers increased daily until 3/5/10, when they began to decrease rapidly until none remained on 15th June. During their stay they lived almost entirely on the ground during the day, only occasionally flying up to the eucalypt flowers to catch the insects that were numerous in them. As in the case of *Pardalotes*, an accumulation of honey and pollen was frequently noticeable on the feathers of the throat and fore-head."

Barnard wrote from Cape York: "A few observed in the forest country."

Littler in 1913 recorded a specimen from Tasmania, noting: "It was but the second bird to my knowledge taken in the island. Although prior to it being obtained there had not been any heavy gales, without a doubt it had been blown across from the mainland."

Capt. S. A. White has written regarding the birds of the Lower Murray: "These pretty and useful birds were met with in the mallee, where they were found breeding. In one instance two young birds were found so large that they could only just hang to the rim of the nest; the parent birds put themselves into a great fuss, and almost dashed into one's face in their frantic efforts to drive the intruder away."

Macgillivray noted: "Common in the Gulf country, but only occasional at Cape York."

Barnard from the Northern Territory recorded: "Common. These birds do not leave the McArthur during the winter, but the males assume the sombre plumage of the females and young, and do not regain their black and white coats before October, when they commence to breed."

In the Musgrave and Everard Ranges Capt. S. A. White noted: "Plentiful, but none had regained their summer plumage. They appeared to be migrating."

H. L. White has published McLennan's notes: "Mornington Island, 30/7/15: Fairly plentiful about Mission Station. Maria Island, 20/8/15: Few

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birds seen. King River: A few in forest country. Roper River: Fairly numerous. Stomach, remains of beetles and caterpillars, termites, and other insects."

Campbell and Barnard, writing of birds in North Queensland, stated: "Noted on the tableland of Kirrama. During the winter season the male birds assume the sombre garb of the female. In Central Queensland these birds arrive from the north during September, and shortly afterwards the males change from the sombre hue to the black and white of adults. The transition is very rapid, taking only two or three weeks. As soon as they assume the adult plumage they begin to build."

In 1912 I separated the northern bird as *Lalage tricolor indistincta*, differing in its bluer head and upper back, and especially in its pale rump.

Two years later Ashby named a form *Karua leucomela mayi* from Pine Creek, Northern Territory, but later admitted that this was the species he had in hand. As my name applied to a Wyndham bird, Ashby's name seems absolutely synonymous as the locality Pine Creek, although in Northern Territory is the same faunal area as Wyndham even in a restricted sense.

At present two subspecies may be admitted:

Lalage tricolor tricolor (Swainson).

East Australia from Queensland to

South Australia, and South-west Australia.

It is probable that the South-western form is separable, but better material is necessary.

Lalage tricolor indistincta Mathews.

North-west Australia, Northern Territory.

A somewhat paler form, the female being of a paler coloration also.

GENUS—K A R U A.

KARUA Mathews, Austral Av. Rec., Vol. II., pts. 2-3,

p. 59, Oct. 23, 1913. Type (by original designation) *Campephaga leucomela*
Vigors and Horsfield.

I SEPARATED this as : “ Differs from *Lalage* Boie in its smaller bill and different wing formation ; in *Lalage* the first primary is short, less than half the second which is little shorter than the third, which is longest ; in *Karua* the first primary is proportionately much longer, more than half the second, which is considerably shorter than the third, which is longest.”

The bill is a little shorter than in the preceding genus, but is broader and deeper with the nostrils hidden by the frontal feathers and a few prominent rictal bristles can be observed.

The wing is more rounded in shape, the first primary being longer and broader as above noted, the second less than the sixth, the third, fourth and fifth being subequal, the third generally the longest.

The tail is broad and rounded, about five-sixths the length of the wing.

The tarsus shows a few scutes anteriorly as in the preceding genus.

Coloration somewhat as in the preceding genus, but in the male breeding plumage there is no white wing-bar, and the under tail-coverts are bright buff ; the female shows a more advanced state than the female of the former, approximating more to that of the male.

Order PASSERIFORMES.

No. 497.

Family CAMPOPHAGIDÆ.

KARUA LEUCOMELA.

PIED CATERPILLAR-EATER.

(PLATE 418.)

CAMPEPHAGA LEUCOMELA Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 215, Feb. 17, 1827 : Broad Sound, Queensland.

Campephaga leucomela Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 215, 1827 ; Gould, Birds Austr., pt. xxxiv. (Vol. II., pl. 62), Dec. 1st, 1848 ; *id.*, Handb. Birds Austr., Vol. I., p. 203, 1865 ; Ramsay, Ibis, 1865, p. 84 ; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878.

Campephaga karu Gould, Birds Austr., pt. xxxi. (Vol. II., pl. 61), June 1st, 1848 ; *id.*, Handb. Birds Austr., Vol. I., p. 202, 1865 ; Ramsay, Ibis, 1865, p. 84 ; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 48, 1875.

Campephaga (rufiventris) Gray, Genera Birds, Vol. I., p. 283, June 1846, based on Voy. Pôle Sud., pl. 11 : Raffles Bay, Northern Territory ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878.

Lalage "leucomela" Bonaparte, Consp. Gen. Av., Vol. I., p. 355, 1851.

Lalage karu (partim) Bonaparte, *ib.* ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878.

Lalage leucomelæna Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 106, 1879 ; Ramsay, Tab. List Austr. Birds, p. 5, 1888 ; Hall, Key Birds Austr., p. 13, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 104, 1901 ; Le Souëf, Emu, Vol. II., p. 143, 1903 (N.T.) ; Mathews, Handl. Birds Austral., p. 68, 1908 ; Broadbent, Emu, Vol. X., p. 236, 1910 (N.Q.) ; Hill, *ib.*, p. 278, 1911 (N.W.A.) ; Barnard, *ib.*, Vol. XI., p. 26, 1911 (N.Q.).

Lalage karu leucomela Hartert, Nov. Zool., Vol. XII., p. 224, 1905.

Lalage leucomela leucomela Mathews, Nov. Zool., Vol. XVIII., p. 328, 1912.

Lalage leucomela yorki Mathews, *ib.*, p. 329, Jan. 31st, 1912 : Cape York, North Queensland.

Lalage leucomela gouldi Mathews, *ib.* : (Alligator River) Northern Territory.

Karua leucomela leucomela Mathews, List Birds Austr., p. 196, 1913 ; *id.*, South Austr. Ornith., Vol. II., pt. 3, p. 57, 1915.

Karua leucomela yorki Mathews, List Birds Austr., p. 196, 1913.

Karua leucomela rufiventris, Mathews, *ib.* ; *id.*, Ibis, 1914, p. 123.

Campephaga leucomela Macgillivray, Emu, Vol. XIII., p. 170, 1914 (N.Q.) ; H. L. White, *ib.*, Vol. XVI., p. 224, 1917 (N.T.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 26,



H. Grönvold, del.

Witherby & Co.

LALAGE TRICOLOR.
(WHITE-SHOULDERED CATERPILLAR-EATER.)

KARUA LEUCOMELA.
(PIED CATERPILLAR-EATER.)

PIED CATERPILLAR-EATER.

1917 (N.Q.); Macgillivray, *ib.*, p. 200 (N.Q.); Campbell, *ib.*, Vol. XX., p. 61, 1920 (N.Q.).

DISTRIBUTION. New South Wales, Queensland, Northern Territory, North-west Australia.

Adult male. General colour of the upper-surface black with a steel-blue gloss including the head, back, wings and tail with pale grey bases to the feathers; median and greater upper-wing coverts broadly tipped with white; outer margins of flight-quills white, narrowly on the primaries and much more broadly on the secondaries, as are also the inner webs of both; upper tail-coverts dark slate-grey; outer tail-feathers tipped with white much more extensively on the outermost; loral streak and a line over the eye white; a spot in front of the eye, upper eyelids and ear-coverts like the back; cheeks, lower eyelids, throat, axillaries, under wing-coverts and inner margins of quills below pure white; breast, abdomen, thighs, and sides of the body greyish-white; vent buff becoming fawn colour on the under tail-coverts; apical portion of flight-quills below blackish; lower aspect of tail black with white tips to the outer feathers and along the outer webs of the outermost one on each side. Bill, eyes and feet black. Total length 175 mm.; culmen 11, wing 97, tail 81, tarsus 22. Figured. Collected at Utingu, Cape York, North Queensland, on the 10th of August, 1912.

Adult female. General colour of the upper-surface dusky-brown including the head, back, wings and tail; a loral streak which extends over the eye on to the sides of the nape and eye-ring above and below whitish; a line of black from the front edge of the eye to the base of the bill; hinder edge of eye and supra-auricular space like the back; the central portion of the feathers on the top of the head slightly darker than the margins; upper wing-coverts and secondary-quills rather darker than the back and inclining to black, the median and greater series of coverts tipped with white; outer edges of secondaries and inner margin of flight-quills white; outer tail-feathers black tipped with white which colour extends for some distance along the outer web of the outermost feather on each side; ear-coverts whitish with black hair-like tips to the feathers; throat white slightly marked with pale grey bars on the cheeks; breast and sides of body pale fawn colour with dark narrow cross-bars; the feathers on the thighs dusky-grey with white tips; abdomen and under tail-coverts uniform fawn colour; axillaries, under wing-coverts, and inner margins of quills below white, remainder of the quill-lining pale hair-brown; lower aspect of tail blackish with white tips to the outer feathers. Eyes, bill and feet black. Measurements about the same as in the male. Figured. Collected at Piara, Cape York, North Queensland, on the 2nd of May, 1913.

Nest. Shallow, saucer-shape. Composed of twigs and rootlets held together with cobweb. Outside measurements $2\frac{1}{2}$ inches by $1\frac{1}{4}$ deep. Inside $1\frac{1}{2}$ by $\frac{3}{4}$ deep.

Eggs. Clutch, one. Ground-colour greenish, blotched, more at the larger end, with reddish-brown. 23-25 mm. by 13-14.

Breeding-season. October to January.

WHEN Vigors and Horsfield described this species they recorded nothing about its habits and stated their only specimen was in poor condition.

Gould stated that he did not meet with it during his visit to Australia, and under the name *C. karu* wrote: "Gilbert, who met with this species at Port Essington, states that it is a very shy and timid bird, that it is generally seen creeping about in pairs among the thickets and clumps of mangroves, that its

THE BIRDS OF AUSTRALIA.

note is a somewhat shrill piping call, that its stomach is tolerably muscular, and that it feeds upon insects of various kinds."

From Melville Island Mr. J. P. Rogers wrote: "Cooper's Camp, Nov. 20, 1911: This species is more numerous than *Lalage tricolor* on this island, and is a rather silent bird, its note being more like that of the Caterpillar-catcher (*M. tenuirostris*) than that of the bird just named. Its favourite haunts are the dense growths along creeks, and in clumps of heavily foliated trees and shrubs. In comparison to *L. tricolor* it is a skulker, moving quietly about amongst the branches, and appears to be a confirmed fruit eater; the stomachs as a rule contain little else than the smaller native fruits. Dec. 13, 1911: North side of island. Sparingly distributed here. Cooper's Camp, Feb. 4, 1912: Not numerous now, birds seen occasionally, sometimes in open forest country."

Barnard states that at Cape York it is "fairly plentiful in forest country and on the edges of scrubs. Found breeding in the forest."

This was confirmed by Macgillivray: "Fairly numerous all the year round at Cape York, in the scrub, open forest, and mangroves. One nest was found, early in February, built on the topmost branch of a mangrove at fifty feet from the ground. The nest is a very small structure, hardly more than sufficing to hold the single egg."

McLennan's notes, as recorded by H. L. White, read: "Glyde River 11/9/15: Bird seen. Liverpool River 21/9/15: A couple noted. King River: Occasionally seen about scrub. Stomach, small fruit."

From North Queensland Campbell and Barnard wrote: "Pied Caterpillar-eaters were frequently observed silently moving about the scrubs. There is no appreciable difference between a specimen procured and specimens from New South Wales, which locality is not mentioned by Mathews for this species."

Campbell later wrote: "Specimen from Torres Straits Islands is similar to mainland birds, especially those from North West (same wing, 98 mm.) but lighter underneath, particularly the tail-coverts, which are not so rufous as seen in some Richmond River and Cairns specimens. Numerous and breeding."

In 1912 I recognised three subspecies as follows:

Lalage leucomela leucomela (Vigors and Horsfield).

Queensland.

Lalage leucomela yoriki Mathews.

North Queensland.

Differing in its smaller size: wing 98; wing of *leucomela* 105 mm.

Lalage leucomela gouldi Mathews.

Northern Territory: North-west Australia.

Differing in the barring on the under-surface, paler under tail-coverts, and smaller size. Av. wing 98 mm.; typical av. wing 105 mm.

PIED CATERPILLAR-EATER.

These were maintained in 1913 with the correction of the genus name to *Karua*, and the recognition that Gray's name of *rufiventris* was preferable to *gouldi*; and these may still be accepted, as :

Karua leucomela leucomela (Vigors and Horsfield).

New South Wales, Queensland (South).

Karua leucomela yorki (Mathews).

North Queensland.

Karua leucomela rufiventris (Gray).

Northern Territory, North-west Australia.

FAMILY—SPHECOTHERIDÆ.

IN the *Austral Avian Record*, Vol. III., No. 6, p. 139, June 25, 1918, I discussed *Turdus maxillaris* Latham, and then continued: "Other items may be here noted. First, the systematic position of the genus: in my "List," following the traditional location, it was included in the Family *Oriolidæ*, but this does not seem to be at all correct. Superficially, a separation seemed necessary, and I had been looking for a suitable alternative when I came across the following account by Pycraft in the *Proc. Zool. Soc. (Lond.)*, 1907, p. 376: 'I have been much puzzled as to the systematic position of the genus *Sphecotheres*. Generally regarded as one of the *Oriolidæ*, it seems to me much more nearly allied to the *Campophagidæ*, and should, indeed, be included in this Family. The skull bears a general resemblance to that of *Graucalus*. It is certainly not an Oriole, at any rate, if the skulls in the Museum Collection are rightly labelled, and there seems to be no reason to doubt this. The fact that *Sphecotheres* has not developed the peculiar shiny rump feathers so characteristic of the *Campophagidæ* may be urged, by some, as an objection to the introduction of this genus to the Family *Campophagidæ*. This, however, does not seem a very weighty objection, for the feathers in question vary in the degree of their spininess very considerably, in some genera it is hardly noticeable.' On p. 96, Supplement, Vol. XII., of the *Emu*, 1913, a footnote reads: '*714-715, Mr. Milligan claims that, as a result of field and cabinet observation, this genus should be included in the *Campophagidæ*.' I have seen no further explanation given by Milligan, but if his observations were made, ignorant of Pycraft's conclusions, the transference of the genus to the neighbourhood of the *Campophagidæ* is certain. I will therefore accept this location as the best at the present time."

GENUS—SPHECOTHERES.

SPHECOTHERES Vieillot, Analyse nouv. Ornith., p. 42,

April 14, 1816. Type (by monotypy) *S. viridis* Vieillot.

Also spelt—

Sphecotera Vieillot, *ib.*, p. 68.

Picnoramphus Rosenberg, Tijdschr. Nederl. Ind.,

Vol. XXIX., p. 143, 1866. Type (by monotypy) *P. cucullatus* Rosenberg.

LARGE Sphecotherine birds with stout bills, bare eye spaces, long pointed wings, long square tail and short stout legs and feet.

The culmen is arched, the point sharp and strongly decurved, a posterior notch being generally developed; the ridge is roundly keeled, the side slopes steep but basally expanding below the nasal groove; the nasal groove is short and the nasal apertures appear placed as semi-perpendicular ovals succeeded by a membranous operculum: the lower mandible is stout and triangular, the rami fusing into a stout gonys at about half the length of the bill; the interramal space is fully feathered: there is a large bare space surrounding the eye, and rictal bristles appear to be absent.

The wings are long and rather pointed: the first primary short, about half the length of the third which is longest, the fourth a little less, the fifth a little shorter still, the sixth about equal to the second, the seventh and eighth much less and little exceeding the secondaries though these are much longer than the first primary.

The tail is long and square, about two-thirds the length of the wing.

The legs are short and stout, anteriorly with about six strong scutes, posteriorly bilaminate but obscurely a scutation is sometimes seen; the toes are short and stout, normally passerine, hind-toe large, as is hind claw; the outer and inner subequal, the middle toe longest and with claw about equal to hind-toe and claw.

Order PASSERIFORMES.

No. 498.

Family SPHECOTHERIDÆ.

SPHECOTHERES VIEILLOTI.

FIG BIRD.

(PLATE 419.)

SPHECOTHERES VIEILLOTI Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 215, Feb. 17, 1827 : Keppel Bay, Queensland.

**Sphecotheres vieilloti* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 215, 1827.

Sphecotheres viridis (not Vieillot Analyse, p. 68, 1816 or Gal. d'Oiseaux, pl. 147), Vigors and Horsfield, *ib.*

Sphecotheres virescens Jardine and Selby, Illus. Ornith., Vol. II., pl. 79, July 1829 : New South Wales.

Sphecothera grisea Lesson, Traité d'Orn., livr. 5^e, p. 351, (Dec.) 1830 : "Aux Terre Australes" (part only).

Lanius asturinus Lesson, *ib.*

Sphecotheres canicollis Swainson, Anim. in Menag., p. 320, Dec. 31st, 1837 : "Australia" = New South Wales.

Sphecotheres maxillaris Gray, Genera Birds, Vol. I., p. 231, 1845 (not Latham); Gould, Handb. Birds Austr., Vol. I., p. 467, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 224, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; *id.*, Tab. List Austr. Birds, p. 11, 1888; Hall, Key Birds Austr., p. 10, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 82, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 81, 1902; Cornwall, Emu, Vol. VII., p. 173, 1908 (N.Q.); Mathews, Handl. Birds Austral., p. 104, 1908.

Sphecotheres australis Gould, Birds Austr., pt. xxx. (Vol. IV., pl. 15), March 1st, 1848 : Queensland; Diggles, Ornith. Austr., pt. II., 1866.

Oriolus maxillaris Schlegel, Mus. de Pays-Bas, Vol. I., Coraces, p. 115, 1867.

Sphecotheres maxillaris maxillaris Mathews, Nov. Zool., Vol. XVIII., p. 436, 1912; *id.*, List Birds Austr., p. 306, 1913.

Sphecotheres maxillaris vieilloti, Mathews, Nov. Zool., Vol. XVIII., p. 436, 1912; *id.*, List Birds Austr., p. 306, 1913; *id.*, South Austr. Ornith., Vol. II., p. 60, 1915.

Sphecotheres maxillaris boweri, Mathews, Austral Av. Rec., Vol. III., pt. 5, p. 63, April 7th, 1916 : Cairns, North Queensland.

Not *Turdus maxillaris* Latham, Suppl. Index Ornith., p. XLIII., 1801 : New South Wales.
Cf. Mathews, Austral Av. Rec., Vol. III., pt. 6, p. 139, pl. VI., 1918.

* Also spelt *Sphecothera*.



H. Gronvold del.

Witherby & Co

SPHECOTHERES VIEILLOTI
(FIG - BIRD)

FIG BIRD.

DISTRIBUTION. Eastern Australia from Cairns, North Queensland, to Sydney, New South Wales. ? Extra-limital (New Guinea).

Adult male. Crown of head, nape, and sides of face glossy black, with hair-like tips to the feathers of the crown, merging into grey on the hind-neck, sides of neck, and sides of throat; entire back, upper tail-coverts, and wings yellowish-green, including the outer webs of the secondary-quills; bastard-wing, primary-coverts, and flight-quills blackish with grey edges to the outer webs and pale margins to the inner ones of the last; middle tail-feathers slightly fringed with yellowish-green, the outer ones blackish at the base, the apical portion and outer web of outermost feather on each side white; throat and fore-neck uniform slate-grey like the thighs; breast, abdomen, sides of the body, axillaries and under wing-coverts like the back; vent and under tail-coverts white; greater series of under wing-coverts and inner margins of quills below grey, remainder of quill-lining pale brown; lower aspect of tail dark brown on the central feathers, and more or less on the outer ones. Bill black, feet and tarsus flesh, eyes red, orbits red. Total length 264 mm.; culmen 22, wing 150, tail 102, tarsus 25. Figured. Collected at Rockhampton, Queensland, in 1876.

Adult female. Crown of head, sides of face, hind-neck, upper-back, scapulars and wings dark soot-brown like the sides of the breast with pale narrow fringes to the feathers on the head and mantle; median and greater upper wing-coverts and secondary-quills edged with buffy-white and tinged with yellow on the last, inner margins of flight-quills also buffy-white; lower back, upper tail-coverts, and middle tail-feathers yellowish-green, the outer feathers smoke-brown edged with white at the tips and along the inner margins; throat smoke-brown with darker centres to the feathers; breast, abdomen, sides of body, and under tail-coverts dark soot-brown, the feathers broadly fringed with white, the dark pattern diminishing in extent on the lower-abdomen and almost obsolete on the under tail-coverts; lower flanks tinged with yellow; axillaries and under wing-coverts drab-grey like the inner margins of the flight-quills below, remainder of quill-lining pale brown; lower aspect of tail greyish-brown, the feathers margined with whitish. Bill horn, feet and tarsus grey-flesh, eyes brown, orbits bluish-red. Total length 293 mm.; culmen 22, wing 163, tail 115, tarsus 26. Figured. Collected on the Richmond River, northern New South Wales, in October 1905.

Immature (in change). Feathers of head greenish-grey with black tips and grey intermixed; hind-neck greenish-grey, not pure grey as in adult; back and scapulars dull green with darker shaft-stripes; rump and upper-tail-coverts bright green; primaries dull dirty brown, primary-coverts brownish with faint paler edgings, secondaries brown with outer webs greenish, edgings paler; secondary coverts green with pale edges, other wing-coverts pale green; tail-feathers brown, the centre ones blackish with green edges, outer ones paler on inner webs especially towards tips; throat and breast striped, the feathers having a central brown linear marking, edges whitish; sides of body similarly marked, the feathers having greenish tips; centre of abdomen whitish; under tail-coverts white; inner wing-coverts brownish with white edgings.

Immature female. Similar to adult female but with broader white edgings to wing-coverts, secondaries and primaries.

Nest. Saucer-shaped, thinly built of vinelets and stems of climbing plants, with no lining. It is strongly made. Outside dimensions 6 inches by $2\frac{1}{2}$ deep. Inside $4\frac{3}{4}$ by 2 deep. "Constructed in about ten days." (Savage.)

Eggs. Clutch, three. Ground-colour greenish, spotted all over but more at the larger end with reddish or purplish-brown. 31-35 mm. by 24-25.

Breeding-season. October to December.

THE BIRDS OF AUSTRALIA.

AMONG the Watling drawings was one No. 151 upon which Latham based his "Maxillary Thrush," *Gen. Syn. Suppl. II.*, p. 186, 1801. The description reads: "Size of the last (*i.e.* a Song Thrush); crown of the head black, passing between the bill and eye on each side, and ending in a large patch below the jaw; hind part of the neck dull blue; back, wings, and tail brown, with a tinge of greenish-bronze on the shoulders, mixed with black and green; all the under parts of the body bluish-white; tail even at the end; the tips of all the feathers of it white; the bill has both mandibles slightly curved, and brown; irides orange; legs yellow. Met with at *Port Jackson*, in *New Holland*."

Such a description does not exactly fit any Australian bird, so that the name was not applied until 1843, when the drawings in the possession of the Earl of Derby were examined by G. R. Gray, H. E. Strickland, and Gould, when a vague resemblance to the present species was noted, and for some unknown reason it was deemed advisable to resurrect the Lathamian name in this connection. Having been accepted by such authorities, it became commonly used and persisted until a couple of years ago, when I reproduced the Watling drawing in the *Austral Avian Record* and rejected Latham's name as a legitimate one for usage. In that place I reproduced the above description and indicated the discrepancies, and gave full reasons for my action. If this description be read alongside the coloured figure now given, these discrepancies will be well seen: these may be pointed out as cumulative, as in each item there are discrepancies—the black patch below the jaw, dull blue hind-neck, the shoulder coloration: the bluish-white under-surface, the tail-feathers with white tips, the orange irides with no bare space, etc. It is possible that the artist painted his figure from a specimen of this bird, but if so he was a very poor painter and apparently was responsible for most of the unidentified paintings in the "Watling" series: it need not be again emphasised that this painting was not made by Watling himself.

When Vigors and Horsfield met with a specimen of this species in the Collection of the Linnean Society they referred it to *Sphecotheres viridis* Vieillot, and commented as follows: "M. Vieillot ranks this genus among or near the *Thrushes*. Its strong bill, however, inclines us to give it a station among the *Shrikes*; but at that extremity of the family which approaches the *Thrushes*. We do not see in this bird any of the leading characters of *Graucalus* Cuv. in which genus MM. Quoy and Gaimard have placed it. In particular, it wants those sharp and pointed feathers on the back which distinguish the birds of that group. In its habits perhaps, which those naturalists had the best opportunity of observing, it may approach *Graucalus*, and thus indicate the affinity which unites the present subfamily (*Thannophilina* Swains.) to the succeeding (*Campephagina* Swains.), of which that genus makes a part.

FIG BIRD.

Our specimen was presented to the Society by Mr. Brown, who met with this species in Keppel Bay, August 11th and October 21st, 1802. It differs from M. Vieillot's figure in having the back part of the neck cinereous instead of green, and the ends of the lateral feathers white. Our bird may probably be a male. If it should prove to be a distinct species, it may appropriately receive the specific name of *Vieilloti* after the founder of the genus."

Gould's note reads: "I killed a fine specimen of this bird on Mosquito Island, at the mouth of the River Hunter, in September 1839; it was perched on a dead branch which towered above the green foliage of one of the high trees of the forest, and my attention was drawn to it by its loud and singular note. This was the only example that came under my observation, but it is more plentiful in the neighbourhood of the River Clarence, is abundant at Moreton Bay, and that it enjoys a wide range is proved by Mr. Bynoe having procured an adult male on the north coast. It appears to be peculiar to the brushes, and its food doubtless consists of the berries and fruits which abound in those districts. Nothing is known of its nidification. The sexes differ very widely from each other in colour."

E. M. Cornwall, giving notes on birds found breeding near Mackay, North Queensland, states: "One of the most familiar birds about the town is the Fig Bird (*Sphecotheses maxillaris*). Many pairs build their nests every season in the fine trees which adorn the streets of Mackay, and one may often see them sitting quietly on their eggs just a few feet above the traffic of the busiest part of the town. Two or three is the usual number of eggs to a clutch, but the unusual number of four eggs was noted by Mr. T. P. Austin, on 13th November, 1907. This (1907-8) season has been a very favourable one, and during the latter part of December and the early part of January, Fig Birds were observed busily attending to matters pertaining to a second brood."

In spite of this account, long series of this species showing plumage changes are not available, and it is now doubtful whether the much debated *Sphecotheses stalkerii* Ingram, as noted hereafter, is anything more than a peculiar state of plumage of the northern form of this species.

I admitted two forms in my 1913 "List"—a southern one from New South Wales and a northern one from South Queensland—and then later named the Cairns bird, and these may be retained, especially as the Townsville birds are still indeterminate as to the plumage changes. I find, however, that the most southern bird is much darker above and below especially on the abdomen, and we can use for it the name *S. canicollis* Swainson.

The races will be:

Sphecotheses vieilloti vieilloti Vigors and Horsfield.

South Queensland.

THE BIRDS OF AUSTRALIA.

Sphecotheres vieilloti canicollis Swainson.

New South Wales.

Sphecotheres vieilloti boweri Mathews.

North Queensland.

This may possibly have to bear the name *S. vieilloti stalkerii* Ingram, and we may add :

Sphecotheres vieilloti salvadorii Sharpe.

New Guinea.



H. Gronvold del.

Witherby & Co

SPHECOTHERES FLAVIVENTRIS
(YELLOW-BELLIED FIG-BIRD).

SPHECOTHERES FLAVIVENTRIS.

YELLOW-BELLIED FIG BIRD.

(PLATE 420.)

SPHECOTHERES FLAVIVENTRIS Gould, Proc. Zool. Soc. (Lond.). 1849, p. 111, 1850 (Jan.-June) : Cape York, Queensland.

Sphecotheres flaviventris Gould, Proc. Zool. Soc. (Lond.), 1849, p. 111, 1850 ; *id.*, Birds Austr., Suppl., pl. 37 (pt. I.), March 15th, 1851 ; *id.*, Handb. Birds Austr., Vol. I., p. 468, 1865 ; Diggles, Ornith. Austr., pt. II., 1866 ; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 225, 1877 ; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 54, 1877 ; Ramsay, *ib.*, Vol. II., p. 188, 1878 ; *id.*, Tab. List Austr. Birds, p. 11, 1888 ; Hall, Key Birds Austr., p. 10, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 84, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 83, 1902 ; Le Souëf, Emu, Vol. II., p. 87, 1902 (N.T.) ; Campbell, *ib.*, Vol. VII., p. 196, 1908 (? N.S.W.) ; Mathews, Handl. Birds Austral., p. 104, 1908 ; Barnard, Emu, Vol. XI., p. 29, 1911 (N.Q.) ; Macgillivray, *ib.*, Vol. XIII., p. 183, 1914 (N.Q.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 35, 1917 (N.Q.) ; Macgillivray, *ib.*, p. 208, 1918 (N.Q.).

Sphecotheres flaviventris flaviventris Mathews, Nov. Zool., Vol. XVIII., p. 436, 1912 ; *id.*, List Birds Austr., p. 307, 1913.

Sphecotheres flaviventris audoni Mathews, Nov. Zool., Vol. XVIII., p. 436, Jan. 31st, 1912 : Cairns, North Queensland ; *id.*, South Austr. Ornith., Vol. II., p. 61, 1915.

Sphecotheres flaviventris ashbyi Mathews, Nov. Zool., Vol. XVIII., p. 436, Jan. 31st, 1912 : Alligator River, Northern Territory ; *id.*, List Birds Austr., p. 307, 1913 ; *id.*, Ibis, 1914, p. 131.

DISTRIBUTION. North Queensland : Northern Territory. Extra-limital.

Adult male. Crown of head, upper hind-neck, and sides of face black ; lower hind-neck, entire back and upper tail-coverts, scapulars, upper wing-coverts and outer webs of secondary-quills yellowish-green ; bastard-wing and primary-coverts black fringed with grey or yellowish-green ; flight-quills blackish, paler on the margins of the inner webs and grey on the outer edges of the primaries ; tail blackish, the central feathers fringed with yellowish-green, more broadly at the tips, the outer feathers paler, inclining to smoke-brown and becoming white, slightly shaded with smoke-brown on the apical portion, the outer web of the outermost feather on each side white along its entire length ; cheeks, throat, breast, upper-abdomen, and lower flanks bright yellow ; sides of breast and sides of body, axillaries and under wing-coverts similar to the back but rather paler ; middle of lower-abdomen, vent, and under tail-coverts white ; under-surface of flight-quills grey, or greyish-brown ; lower

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aspect of tail greyish-brown on the central feathers becoming paler on the outer ones which are white on the terminal portion. Bill black, feet and tarsus fleshy-white, eyes brown, orbits red. Total length 290 mm. ; culmen 22, wing 149, tail 103, tarsus 24. Figured. Collected on Melville Island, Northern Territory, on the 11th of May, 1912.

Adult female. Crown of head, sides of face, hind-neck, sides of neck, and throat smoke-brown, with pale margins to the feathers ; upper back and scapulars dark smoke-brown with minute pale dots at the tips of the feathers ; upper wing-coverts, bastard-wing, and flight-quills similar with whitish, or yellowish-white margins ; lower back, upper tail-coverts and tail yellowish-green, the outer-tail feathers smoke-brown with whitish edgings ; breast, abdomen, and under tail-coverts white streaked with smoke-brown, which become narrower on the lower-abdomen and almost obsolete on the under tail-coverts ; axillaries, under wing-coverts, and inner margins of quills below whitish-buff, remainder of quill-lining greyish-brown ; lower aspect of tail greyish-brown with an indistinct tinge of yellowish on the central feathers. Bill brown, feet and tarsus bluish-grey, eyes brown, orbits leaden-blue tinged with red. Total length 138 mm. ; culmen 22, wing 157, tail 108, tarsus 26. Figured. Collected on Melville Island, Northern Territory, on the 14th of May, 1912.

Immature female. Very similar to adult but head striping more obscure, feathers of the back duller brown, feathers of the under-surface with broader white edgings ; tail similar but wing-coverts, secondaries and primaries with broader white edgings.

Immature male (nestling). Head darker less distinctly striped, back, tail, and all under parts similar to preceding but differing in wing coloration ; secondaries with pale green edges, secondary coverts pale brown edgings and other coverts lacking white tipping generally.

Immature male (in change). Feathers of head brownish-green, the centres darker, mixed with a few new black ones ; at the back of the neck the feathers are similarly mixed but the dark ones predominate ; feathers of the upper back dull green with dark shaft-stripes ; rump and upper tail-coverts pure bright green ; primaries brown ; secondaries brown with the outer webs greenish, edgings greenish-white ; primary-coverts brown with whitish edges ; secondary coverts green with white tips ; other coverts green without paler tips ; tail-feathers greenish above, pale brownish below ; four centre ones bright green above ; next four brown on inner webs, green on outer webs, outside four pale brown with a faint greenish tinge ; under-surface showing bold striping ; feathers of throat brown with greenish-white edgings, the edgings very narrow ; on the upper-breast the edgings a little broader and also more yellowish-green ; on the lower-breast the central brown stripe narrower, the edgings broader and still more yellowish ; abdomen and under tail-coverts white ; inner wing-lining pale brown with white edges. Iris brown ; bill dark horn colour ; legs and feet flesh colour.

Nest. Very similar to that of *vieillotii*. Saucer-shaped, thinly built of twigs, vinelets, etc., firmly held together. No lining. Outside dimensions 5 inches by 3 deep. Inside $3\frac{1}{2}$ by $1\frac{1}{2}$.

Eggs. Clutch, three. Ground-colour greenish to greenish-white or even greenish-brown, spotted and blotched with reddish-brown or purple. 31-36 mm. by 22-24.

Breeding-season. October to January.

THIS beautiful species was described by Gould, who gave the following note :
“ This bird may always be distinguished from its near ally by the beautiful

YELLOW-BELLIED FIG BIRD.

jonquil-yellow of its under-surface. Mr. Macgillivray informed me that it is very common in the neighbourhood of Cape York, where he daily observed it either in pairs or in small parties of three or four individuals, which were generally very shy and difficult of approach. It frequents the open forest land in company with the *Tropidorhynchus argenticeps*, and resorts to the branches for its food, which consists of fruit of various kinds, such as figs, etc. His specimens were procured by keeping himself carefully concealed beneath one of its favourite feeding trees and watching until an opportunity offered of getting a shot. He once saw several nests which he had no doubt belonged to this species; nearly all of them were built among the topmost branches of very large gum trees, which he could not induce the natives to attempt to climb; a deserted nest was, however, within reach, being placed on an overhanging branch not more than twenty feet from the ground; it measured about a foot in diameter, and was composed of small sticks lined with finer ones. As is the case with other members of the genus, the sexes offer a marked difference in colour."

Barnard wrote from Cape York: "Very plentiful in forest country, and nested chiefly in Moreton Bay ash in company with the *Tropidorhynchus buceroides*."

Campbell and Barnard, writing of Herberton birds, omitted to give much detail, contenting themselves as follows: "These beautiful yellow-breasted birds, with scarlet 'facings' are as common as Canaries. They love the precincts of dwellings, and frequently breed in the trees of gardens. The birds are very noisy at times, and their chicken-like chirpings are a bit monotonous, especially at daybreak."

Macgillivray wrote: "The Yellow-bellied Fig Bird was common all through from Cooktown. At the Claudie it frequented both scrub and open forest. This species usually nests in the same tree as the Drongo and Helmeted Friar Bird, in the open forest. It feeds mostly upon wild fruits. A few were noted on the Archer River."

Though apparently not very rare, very little has been written about this form, even in its extra-limital range.

In my "Reference List" I separated the Australian forms into three, thus:

Sphecotheres flaviventris flaviventris Gould.

Cape York, Queensland.

Sphecotheres flaviventris audoni Mathews.

Cairns, Queensland.

"Larger than *S. f. flaviventris*, and brighter coloration below."

Sphecotheres flaviventris ashbyi Mathews.

Alligator River, Northern Territory.

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“Much larger than *S. f. flaviventris*, and darker, green above and below. Wing 157 mm.; typ. 140-145 mm.”

In my 1913 “List” I synonymised the two former and maintained the last named, and this conclusion can still be accepted.

Rosenberg described an extra-limital specimen as a new genus and species *Picnoramphus cucullatus*, and this specific name is available for the extra-limital subspecies.

Referring to the figure of *Turdus melinus* Latham, Campbell has written: “There seems no doubt that Watling’s figure was intended for the Yellow-bellied Fig Bird (*Sphecotheres flaviventris* Gould). Had Dr. Sharpe been aware of the fact that the Yellow-bellied *Sphecotheres* has been observed in New South Wales (*Nests and Eggs* (Campbell), p. 84), he would have probably suggested the suppression of Gould’s specific name *flaviventris* in favour of Latham’s old *melinus*, on the same lines that other old and established names have been altered. And recently Mr. C. C. Brittlebank observed several of these birds in the neighbourhood of the Tweed River.”

I have never seen or otherwise heard of this bird from New South Wales.

SPHECOTHERES STALKERI.

SPHECOTHERES STALKERI Ingram, Bull. Brit. Ornith. Club, Vol. XXI., p. 100, May 30th, 1908: Mount Elliot, North Queensland.

*Sphecotheres salvadorii stalker*i Mathews, Nov. Zool., Vol. XVIII., p. 436, 1912; *id.*, List Birds Austr., p. 307, 1913.

[Not *Sphecotheres stalker*i Jackson, Emu, Vol. VIII., p. 259, 1909; *id.*, *ib.*, p. 283, pl. XL.]

THE history of this species is short and unsatisfactory. Two birds were found by Ingram in the Stalker Collection from Australia, labelled Mount Elliot, North Queensland. These were said to have been secured out of a flock of six or eight, so that it was presumably not a rare bird. The locality, however, was one of the most accessible to collectors and had been well worked. The specimens were compared with the New Guinea *S. salvadorii* Sharpe, with which they superficially agreed; there were slight differences and these were emphasised by Ingram on account of the locality and the specimens named as a distinct species. An unfortunate mistake was made by Jackson, as upon the assumption that the Townsville Fig Bird must be this new species, he collected the eggs and a figure was given in the *Emu* of the nest and eggs as of this species. However, no further specimens have been collected yet in Australia, either at Townsville or elsewhere, while Fig Birds so far collected at Townsville and adjacent locality all prove to belong to the common species.

Jackson wrote: "The Stalker Fig Bird (*Sphecotheres stalker*i) we found plentiful in this district, and to-day took our first clutch of their eggs. The nest was placed in the topmost branches of a bloodwood (*Eucalyptus corymbosa*) in Ziginbine Pocket, not far from the camp, and contained four eggs. The eggs closely resemble those of the other two Fig Birds, and likewise the nest."

A photograph of the nest and eggs was given and a full description, with the note "(Identification.—Taken by E. D. Frizelle and Sid. W. Jackson at Tinaroo, 70 miles south-west of Cairns, 8th November, 1908. Female identified.)"

At that time and up to the present day only two specimens exist and they are both *males*, so that an identification based upon a *female* is valueless and the eggs and nest described and figured are worthless. Although this was pointed out in correspondence I have seen no retraction of this record, and consequently here place the facts on record and refuse the so-called *S. stalker*i a place on the Australian List until re-confirmed by a reliable collector.

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Ingram's description reads : " Differs from *S. salvadorii* Sharpe in having the grey of the throat flecked or faintly streaked with white, especially on the sides of the neck, below the auriculars, these parts being of a uniform and somewhat darker grey in the typical bird. The back is of a slightly greyer green, and the yellow on the under-surface is conspicuously paler and more extensive, there being much less green on the upper-breast. In this species three, instead of four, of the outer tail-feathers are marked with white. The measurements are similar to those of *S. salvadorii*."

One of my first impressions of these two birds was that they might be wild hybrids between *S. vieillotii* and *S. flaviventris* and this may be really worth consideration. In that case the locality could be accepted and the difficulty is their mimicry of the New Guinea species. The two birds from this point of view show some differences which may assist to a conclusion.

Above all have black heads, the two "*stalkerii*" have greenish backs not so pure as in *flaviventris* but much clearer than in *vieillotii*; they both have grey collars on the hind-neck but of varying extent, in this agreeing with *vieillotii* but not as pronounced, while of course *flaviventris* has no grey collar; the feathers on the back of one specimen show pale yellowish tips, not on the other; both the "*stalkerii*" have grey throats flecked with white, succeeded in one specimen by a greenish band across the chest, the greenish showing on the flanks, the feathers with yellowish tips showing somewhat irregularly; the centre of the abdomen is very pale yellowish-white; the under tail-coverts white; in the other specimen the greenish band is missing, a few greenish feathers with yellowish tips erratically occurring, the centre of the breast being pale yellowish, fading into white on the abdomen and under tail-coverts white; the individual feathers of the sides are mixed greenish and yellow; the tail coloration is also irregular: that of *S. vieillotii* agrees very closely with that of *S. flaviventris* and the two "*stalkerii*" disagree with both and with each other. In one specimen the outer web of the second feather from the outside is white for most of its length and the outside web of the third from the outside for about one-third; in the other the same state is seen in the second, but the third feather shows only a white tip exactly as seen in *S. vieillotii*; in neither *S. vieillotii* nor *S. flaviventris* has the second feather from the outside a white outer web. As indicated by Ingram the species *S. salvadorii* Sharpe has the four outer tail-feathers marked with white.

A further examination suggests that these may represent a plumage change of the northern form, and that *S. salvadorii* Sharpe is simply the New Guinea representative of the southern species *S. vieillotii*. This would account for the variation in plumage also, but no finality can be achieved until a long series is collected showing all the plumage changes.

FAMILY—ORTHONYCIDÆ.

IN my "List of the Birds of Australia" I continued the use of the family name Timeliidæ to include the peculiar forms of Australian birds not definitely placed in other families. At its best the family Timeliidæ was a very poor attempt at constructive avian classification, but as latterly used it was an absurd hotchpotch of dissimilar forms. Its revision will only be due to extensive pruning until little is left save the trunk. I am fortunate in the fact that the genus name *Orthonyx* has priority over the unfortunate *Timalia* (which is the correct spelling, *Timelia* being an unwarranted emendation!), so that my family Orthonycidæ has a firm basis in nomenclatural use. However, there is at present no proof that any Australian bird has any close relation to the genus *Timalia*. It is in this connection that I would consider the "deeper seated" characters of value, viz., to provide a suggestion as to the relationships of the species.

Forbes has recorded a very peculiar variation in connection with the left carotid, but otherwise found little of value, but if study were undertaken now better results might be achieved.

GENUS—ORTHONYX.

ORTHONYX Temminck, Manuel d'Orn., 2nd ed.,
Vol. I., p. LXXXI., Oct. 21st, 1820. Type
(by monotypy) founded on *Orthonyx temminckii* Ranzani.

SMALL Orthonychine birds with short bills, short rounded wings, long spiny wedge-shaped tail, long stout legs and feet. Plumage soft and lax. The bill is short and stout about half the length of the head, the culmen arched, the tip sharp but scarcely decurved; ridge almost keeled, sides compressed, but a little expanded basally, gape rather fleshy. There is a slight "tooth" behind the tip; the nasal groove is about one-third the length of the bill and the nostrils are placed anteriorly in the groove, appearing as circular apertures, obscured by a patch of frontal feathers; the under mandible is strong, the interramal space about half the length of the bill and fully feathered; rectal bristles few and obscure.

The wing is very rounded, the first primary about half the length of the fourth which is about three-fourths the length of the second; the third exceeds the second and is itself exceeded by the fourth which is equalled by the fifth, sixth and seventh; the eighth primary is longer than the third and the secondaries are equal to the tenth primary and longer than the second primary.

The tail is long, composed of twelve broad feathers forming a broad, rounded wedge, the tip of each feather showing a spiny shaft denuded of barbs and all shafts stiff, the centre ones strongest. The feet are very strong, five strong scutes being counted in front, the back being bilaminate, rough scutes being seen at tibial joint behind; the toes are strong and long, all anteriorly joined at first joint, the outer toe being equal to the middle one, the inner a little shorter and equal to the hind-toe; the claws are long and little curved, about half the length of the toes, the hind claw longest.



H. Grönvold, del.

Witherby & C^o.

ORTHONYX MACULATUS
(*SPINE-TAILED LOG-RUNNER*).

ORTHONYX TEMMINCKII.

SPINE-TAILED LOG-RUNNER.

(PLATE 421.)*

ORTHONYX TEMMINCKII Ranzani, Elem. di Zool., Vol. III., pt. III., p. 19, April 3rd, 1822 :
 " Oceanica " = Hat Hill, New South Wales.

Orthonyx temminckii Ranzani, Elem. di Zool., Vol. III., pt. III., p. 19, 1822 ; Vigors and
 Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 294, Feb. 17th, 1827 : Hat Hill,
 near Noura, New South Wales.

Orthonyx maculatus Stephens in Shaw's Gen. Zool., Vol. XIV., p. 186, 1826 : Hat Hill, New
 South Wales ; Mathews, List Birds Austr., p. 196, 1913.

Orthonyx spinicaudus Temminck and Laugier, Plan. Color. d'Ois., 72^e livr. (Vol. IV., pls. 428,
 429), April 25th, 1827 : Hat Hill, New South Wales ; Gould, Birds Austr., pt. xxx.
 (Vol. IV., pl. 99), March 1st, 1848 ; *id.*, Handb. Birds Austr., Vol. I., p. 607, 1865 ;
 Diggles, Ornith. Austr., pt. VIII., 1866 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII.,
 p. 329, 1883 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 191, 1878 ; *id.*, Tab.
 List Austr. Birds, p. 15, 1888 ; Hall, Key Birds Austr., p. 27, 1899 ; Campbell,
 Nests and Eggs Austr. Birds, Vol. I., p. 252, 1901 ; North, Austr. Mus. Spec. Cat.,
 No. 1, Vol. I., p. 317, 1904 ; Mathews, Handl. Birds Austral., p. 69, 1908 ; S. A.
 White, Emu, Vol. XIX., p. 218, 1920 (Q.).

Orthonyx temminckii temminckii Mathews, Nov. Zool., Vol. XVIII., p. 329, Jan. 31st, 1912.

Orthonyx temminckii chandleri Mathews, *ib.* : Richmond River, New South Wales ; *id.*,
 Austral Av. Rec., Vol. I., p. 58, 1912.

Orthonyx maculatus maculatus Mathews, List Birds Austr., p. 196, 1913.

Orthonyx maculatus chandleri, Mathews, *ib.*

DISTRIBUTION. New South Wales ; South Queensland.

Adult male. Crown of head smoke-brown ; upper back also smoke-brown, the feathers
 coarsely and irregularly marked with black ; lower back, rump, and upper tail-
 coverts dark chestnut ; upper wing-coverts black with slate-grey tips to the feathers ;
 bastard-wing uniform blackish-brown ; flight-quills blackish, becoming paler on the
 apical portion and smoke-brown on the outer webs, some of the primary-quills
 grey at the extreme base ; tail dark smoke-brown inclining to blackish on the
 outer feathers, the shafts glossy black ; base of fore-head, lores, and entire sides
 of the face, including the eye dull slate-grey ; the feathers on the sides of the neck
 subterminally black with grey tips, which indicates a black band ; throat, breast,

* The Plate is lettered *Orthonyx maculatus*.

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and abdomen white, tinged with isabelline and some of the feathers on the throat have dark narrow fringes; sides of breast grey becoming smoke-brown on the flanks, lower thighs, and under tail-coverts; the feathers on the upper thighs, lower-abdomen, and vent have dark slate colour bases, which gives a dusky appearance; axillaries and under wing-coverts grey more or less tinged with smoke-brown; under-surface of flight-quills greyish-brown; lower aspect of tail similar to its upper-surface. Eyes dusky, bill and feet black. Total length 190 mm.; culmen 12, wing 93, tail 88, tarsus 33. Figured. Collected on the Richmond River, northern New South Wales, in October 1910, and is the type of *Orthonyx temmincki chandleri* Mathews.

Adult female. Crown of head and nape smoke-brown; the feathers narrowly edged with black; upper back and scapulars also smoke-brown irregularly marked with black and pale shaft-lines to the feathers; lower back, rump and upper tail-coverts chestnut-brown; base of fore-head and entire sides of the face, including the eye, slate-grey; upper wing-coverts black at the base and tipped with slate-grey; bastard-wing and primary-coverts uniform blackish-brown; flight-quills black at the base becoming paler and inclining to bronze-brown on the terminal half, particularly on the outer webs, some of the primaries are grey at the extreme base; tail blackish tinged with coffee-brown, the shafts glossy black; throat and fore-neck pale chestnut, the feathers on the sides of the neck subterminally black which forms a short band; sides of breast inclining to slate-grey; sides of body, thighs, and under tail-coverts smoke-brown; the bases of the feathers on the lower flanks dark slate colour; breast and abdomen white tinged with isabelline on the latter; axillaries and under wing-coverts slate-grey more or less tinged with rust colour; under-surface of flight-quills greyish-brown; lower aspect of tail similar to its upper-surface. Eyes dark, bill and feet black. Wing 87 mm., tail 75, tarsus 30. Figured. Collected on the Richmond River, northern New South Wales, in October 1910, and is a pair with the male.

Immature. Crown of head and upper back, bronze-brown, the feathers edged with black, some of those on the back centred with white; lower back, rump and upper tail-coverts rust-brown, with dark bases to the feathers; tail blackish, the tips of the feathers similar to those of the adult; wings blackish the coverts and outer margins of flight-quills smoke-grey or smoke-brown; sides of neck, sides of face, throat and sides of body bronze-brown, the feathers fringed with black; breast and middle of abdomen whitish with dark fringes to the feathers; flanks, thighs and under tail-coverts dusky-black in colour and downy in texture; under-surface of quills dark brown. Eyes dusky, feet and legs and bill black. Collected on the Tweed River, northern New South Wales, in August 1912.

Immature male. Crown of head and nape dark bronze-brown with dark edges to the feathers; sides of face similar but the feathers are smaller and pale at the tips; upper back dull bronze-brown irregularly marked with black; lower back, rump, and upper tail-coverts dark rust-brown; lesser upper wing-coverts black edged with grey; median and greater series also black tipped with bronze-brown; bastard-wing and primary-coverts blackish-brown; flight-quills also blackish-brown with a patch of dull grey at the base of the primaries and dull bronze-brown margins on the outer webs, which are much wider on the secondaries; tail blackish-brown more or less tinged with dark bronze-brown on the middle feathers, the shafts, which are black, extend beyond the webs at the tips and are almost barbles; cheeks dark slate colour; chin dusky-brown; upper throat white, lower throat and sides of neck bronze-brown with dark edgings to the feathers; breast and upper-abdomen white; lower-abdomen, sides of body, thighs, and under tail-coverts dusky-brown tinged with rust-brown; axillaries, under wing-coverts, and quill-

SPINE-TAILED LOG-RUNNER.

lining dusky-brown ; lower aspect of tail blackish-brown. Collected on Richmond River, northern New South Wales, in October 1905.

Nest. Dome-shaped with side entrance. Composed of sticks, etc., and lined with moss. Outside measurements 10–15 inches.

Eggs.—Clutch, two, white. 27–28 mm. by 20.

Breeding-season. April to July.

THERE has been confusion with regard to the specific name of the present species, and an extraordinary coincidence has necessitated the reversion to probably the best known, but latterly rejected, name. Thus in 1820 Temminck described a genus *Orthonyx*, and gave a good description but did not give a specific name at that time. Seven years later he published two beautiful coloured figures, and named the species *Orthonyx spinicaudus*. In the meanwhile Vigors and Horsfield, dealing with the birds in the Linnean Society's Collection, accepted Temminck's genus name and added to it, as the species name, *temminckii*, but Temminck's specific name became the commonly used one.

The determination by me of the exact dates of publication of the names assigned to Australian birds necessitated the rejection of this name, as it was proved that Stephens's name, given in the same way, *maculatus*, was published some months earlier than Vigors and Horsfield's name, and consequently the valid name was *Orthonyx maculatus*. I now find that prior, by years, to any of these names is one given by Ranzani in 1822, and peculiarly enough this is the common name, *temminckii*, as Ranzani did exactly the same as Vigors and Horsfield, proposed the name of the describer of the genus as the species name.

No note of its habits was given by any of these ornithologists, so that Gould's notes are the earliest and they are rather meagre.

“The Spine-tailed *Orthonyx* is very local in its habitat, being entirely confined, so far as I have been enabled to ascertain, to the brushes which skirt the southern and eastern coasts of Australia, such as those at Illawarra, and in the neighbourhood of the rivers Manning, Clarence, and Macleay. It is usually found in the most retired situations, running over the prostrate logs of trees, large moss-covered stones, etc. I ascertained by an examination of the stomach that the food consists of insects, principally of the order Coleoptera, and that the white throat distinguishes the male and the rufous throat the female. M. Jules Verreaux, who has written (*Revue Zoologique*, July 1847) a highly interesting account of the bird, states that it is strictly terrestrial, and scratches among the detritus and fallen leaves for its food, throwing back the earth like the *Gallinaceæ*. It never climbs, as was formerly supposed, but runs over fallen trunks of trees ; is rather a solitary

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bird, seldom more than two being seen together. Its often repeated cry of *cri-cri-cri-crite* betrays its presence, when its nature haunts, the most retired parts of the forest, are visited. Its chief food consists of insects, their larvæ, and woodbugs. It builds a large domed nest, of slender mosses; the entrance being by a lateral hole near the bottom. The eggs are white and disproportionately large. The situation of the nest is the side of a slanting rock or large stone, the entrance hole being level with the surface."

Mr. J. W. Mellor has written me: "These birds I have met with frequently in upper New South Wales and Queensland, in which latter State I saw them about the thick humid scrubs of the Blackall Ranges in November 1910; they delight to live in the deep recesses where shade and shelter is abundant, and here you may hear a scratching noise amongst the dead and decaying leaves, and by keeping perfectly still the birds will come into sight; they scratch about in much the same manner as the common fowl, their large claws serving them a good purpose in displacing the dead leaves and debris, under which they get their insect food in abundance; they are said to be log-runners, but my experience with them is that they keep to the ground as described and rarely come upon the fallen timbers, although in such places as described the rotten logs lay thickly around. I noted them on the Tweed River, also on the Richmond and Clarence Rivers in New South Wales, where their habits are precisely the same."

Dr. Cleland wrote: "In dense semi-tropical jungle at Thirrone I was attracted by a scratching noise and seeing the dead leaves twirled about like a hen scratching, which proved to be due to this bird."

Mr. Edwin Ashby has sent me the following note: "In the end of September 1903 I spent a few days in the Blackall Range, South Queensland, and there found this bird fairly common. From my personal observations I should say that the name 'Log-Runner' is inappropriate, as the bird does not run but hops. They search for food amongst the dead leaves and fallen logs in the rich tropical growth, their movements making as much noise as a large bird or fowl. On one occasion one of these birds was searching for food amongst the debris under a fallen log a few paces from where I was standing, when it commenced to make a peculiar noise, which brought quite a large company of the same species to the other side of the log, the newcomers keeping up, with the one first seen, a sort of swearing competition for quite a long time; I could not see the new party without climbing over the large log, so could not see actually what they were doing, and when I attempted to get a nearer view they dispersed."

Mr. Thos. P. Austin has written me: "While in the Atherton scrubs, North Queensland, during the last week of October 1907, I often saw small

SPINE-TAILED LOG-RUNNER.

flocks of these birds, mostly about five or six in number, and were always met with upon the ground, where they appear to be invariably scratching about amongst the fallen leaves, hunting for food, exactly the same as a lot of farm-yard fowls. They are extremely shy, upon being disturbed they usually dart into cover, such as behind trees, beneath logs, or fallen branches; in fact, anywhere out of sight. I saw many of their loosely constructed dome-shaped nests, but none contained either eggs or young. They were all placed near the ground, some in lawyer vines, others on top of logs in fallen timber, and various situations, and they were composed of sticks and twigs lined with moss."

The variation in this species and allied forms shows items of much interest. All the names given to the species were based on the same specimen or series from Hat Hill, New South Wales, so that when I wrote up my "Reference List" I added:

Orthonyx temminckii chandleri.

"Differs from *O. t. temminckii* in having the red on the rump less pronounced. Richmond River, New South Wales"; and in my "List" 1913 I maintained these two forms.

It may interest Australians to know that there occurs in New Guinea a species so similar that it was named *Orthonyx temminckii victoriana* by van Oort (*Notes Leyden Mus.*, Vol. 30, p. 234, 1909). Previously the bird from Arfak, New Guinea, had been named *Orthonyx novæguineæ* by Meyer, and the superficial resemblance to the New South Wales bird is striking. It is the same size and similar in coloration but a little darker on the lower back and blacker on the upper back and head, less white on the throat and abdomen, and flanks darker. That it is specifically distinct is certain from the structural characters as the podotheca is booted, instead of being strongly scutellate. The wing formula is similar but the first and second primaries are shorter, the secondaries much longer equal to the length of the third primary and are all softer in texture indicating less power of flight and in addition the tail-feathers have stiffer shafts and the barbules are disintegrated and webs narrower. Instead of being only subspecific these differences being cumulative deserve recognition by a distinct name, especially as the very different *Macrorthonyx* intervenes geographically.

I therefore propose PAPUORTHONYX with type species *Orthonyx novæguineæ* Meyer, and this should be generically used. There is more difference between these species than there is between Gould's *Calamanthus* and *Hylacola*, yet these latter have been unhesitatingly accepted since their proposition seventy years ago.

GENUS—MACRORTHONYX.

MACRORTHONYX Mathews, Austral Av. Rec.,

Vol. I., pt. 5, p. 111, December 24th, 1912.

Type (by original designation) *Orthonyx spaldingi* Ramsay.

I DIFFERENTIATED this genus with the diagnosis: "Differs from *Orthonyx* in its more powerful bill and stronger legs and feet, with longer wings and tail; in the wing the first primary is proportionately longer and the second shorter than in *Orthonyx*; the fourth, fifth and sixth primaries longest and subequal."

The birds are much larger, and constitute a well-marked genus showing the development in size and form without alteration in the coloration to any appreciable degree.

Large Orthonycine birds with long stout bills, large stiff rounded wings, long broad tail and comparatively huge legs and feet.

The bill is more than half the length of the head, the nostrils longer and more horizontal slits; the tooth succeeding the tip is more pronounced and is followed by a secondary sinuation. The wing is larger, the feathers stronger, the wing formula differing slightly; the first primary is longer, more than half the length of the third, the second is only a little shorter than the third, which is nearly as long as the fourth to eighth which are longest and subequal; the ninth primary is equal to the second primary, which is exceeded by the secondaries.

The tail-feathers are very broad, the spiny tips short, the shafts of the outer feathers not very stiff, but the barbs are not disintegrated; the shape is a broad rounded wedge, the centre feathers stiffest. The legs are very stout and powerful; the tarsus booted in front and bilaminate behind; the toes are strong and stout, the outer longer than the middle; the middle claw is a little longer than the outer claw but still the middle toe and claw are exceeded by the outer toe and claw; the inner shorter; all the claws very long and little curved; the hind-toe about equal to the inner toe but the hind claw longer than the inner claw; all the toes bearing pronounced long scutes.



H. Grönvold, del.

Witherby & Co

MACRORTHONYX SPALDINGI.
(BLACK-HEADED LOG-RUNNER).

MACRORTHONYX SPALDINGI.

BLACK-HEADED LOG-RUNNER.

(PLATE 422.)

ORTHONYX SPALDINGI Ramsay, Proc. Zool. Soc. (Lond.), 1868, p. 386, Oct. 1st : Rockingham Bay, Queensland.

Orthonyx spaldingi Ramsay, Proc. Zool. Soc. (Lond.), 1868, p. 386 ; Gould, Birds Austr., Suppl., pl. 53, pt. 5, Aug. 1st, 1869 ; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 599 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 331, 1883 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 191, 1878 ; *id.*, Tab. List Austr. Birds, p. 15, 1888 ; Hall, Key Birds Austr., p. 27, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 252, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 318, 1904 ; Mathews, Handl. Birds Austral., p. 69, 1908 ; *id.*, Nov. Zool., Vol. XVIII., p. 329, 1912 ; *id.*, South Austr. Ornith., Vol. II., p. 57, 1915 ; Campbell and Barnard, Emu, Vol. XVII., p. 26, 1917 (N.Q.).

Macrorthonyx spaldingi Mathews, List Birds Austr., p. 197, 1913.

Macrorthonyx spaldingi albiventer Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 130, Jan. 28th, 1915 : Atherton, North Queensland.

DISTRIBUTION. North Queensland (Rockingham Bay district).

Adult male. Crown of head, nape, sides of face, sides of neck, and sides of breast black ; back, wings, tail, sides of body, thighs, and under tail-coverts dark smoke-brown like the axillaries and under wing-coverts ; chin, throat, breast, and middle of abdomen white ; under-surface of flight-quills and lower aspect of tail smoke-brown. Eyes brown, bill and feet black. Total length 280 mm. ; culmen 19, wing 133, tail 111, tarsus 50. Figured. Collected on the Johnstone River on the 18th of June, 1900.

Adult female. Crown of head, nape, hind-neck, sides of face, sides of neck, and sides of breast black ; entire back, wings, tail, and sides of body coffee-brown like the vent, thighs, under tail-coverts, axillaries and under wing-coverts ; shafts of flight-quills and tail-feathers glossy black, which extend beyond the webs of the latter ; chin, throat, and fore-neck chestnut ; middle of breast and middle of abdomen white with dark brown tips to some of the feathers ; under-surface of flight-quills and lower aspect of tail dark smoke-brown. Eyes dark brown, bill, feet and legs black. Total length 235 mm. ; culmen 16, wing 122, tail 87, tarsus 45. Figured. Collected at Atherton Scrubs, near Cairns, North Queensland, in September 1908.

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Immature male. Fore-part of head, sides of face and throat, and fore-neck ferruginous, some of the feathers on the last edged with brown at the tips; top of head, hind-neck, and mantle similar with dark bases to the feathers; back, scapulars, upper tail-coverts, and outer aspect of wings dark coffee-brown with blackish bases to the upper wing-coverts and inner webs of the bastard-wing, primary-coverts, and flight-quills; tail blackish with glossy black shafts to the feathers which protrude beyond the webs at the tips; sides of breast and sides of body, and under tail-coverts dark coffee-brown, inclining to greyish-brown on the thighs; a few white feathers on the middle of the breast fading into very pale ferruginous on the middle of the abdomen; under-surface of wings dark brown; lower aspect of tail blackish. Eyes, bill and feet black. Collected at Allumbah, near Cairns, North Queensland, on the 19th of December, 1909.

Nest. Like that of the preceding species.

Eggs. Clutch, one. White. 35-38 mm. by 25-26.

Breeding-season. May to August (November), September and October (Ramsay).

RAMSAY described this magnificent species and later gave the following note: "In habits and actions this fine species closely assimilates to *O. spinicauda*, but is far more retiring and shy, much more noisy, and may be heard more frequently than seen. The young attains the adult plumage after the first moult, which takes place about December. They breed in September and October; and I believe the young then hatched moult in February and March, judging from a very fine series of skins I then procured. This species has the habit of scratching up the dead leaves, and throwing the debris far behind it, after the manner of the 'Scrub hens' (*Megapodius tumulus*). Its powers of mimicry are very great; and, like the Lyre-birds, it seems capable of imitating almost any sound. These birds are not only rare, but at all times very difficult to obtain, and appear to be confined to the thickly timbered scrubs on the steep and rugged sides of the coast range near Cardwell."

Campbell and Barnard's notes read: "Bird lovers will be heartily entertained who hear this scrub chatterer for the first time. It is most noisy during early morning, when one or more birds may be seen upon the ground with bowed necks, jerking their heads frantically while jabbering a string of their 'Chow-chilla-chow-chow-chilla' notes. The Log-Runners were confined to the ranges. One of our specimens procured was in immature plumage."

Very little appears to be on record in connection with this delightful endemic Australian form.

I named a subspecies *M. s. albiventer* on account of its white abdomen, from Atherton, but no further material has been received. This is another of the very remarkable Rockingham Bay district evolutions; a form resembling the southern species in size and coloration also occurring in New Guinea, while this form has developed so much in size.

GENUS—CINCLOSOMA.

CINCLOSOMA Vigors and Horsfield, Trans.

Linn. Soc. (Lond.), Vol. XV., p. 219,

February 17th, 1827. Type (by

monotypy) *Turdus punctatus* Latham = Shaw.

LARGE "Cinclosomatine" birds with medium thinnish bills, short rounded wings, long wedge tail of broad feathers and stout legs with small feet.

The bill is more than half the length of the head, laterally compressed, the culmen semi-keeled, basally a little expanded, tip notched and little decurved; nostrils as linear slits, operculate, placed in a groove which extends about one-third the length of the bill, and is open, there being no projecting frontal feathering; the under mandible is stout, the rami little divergent, the interramal space small and feathered; rictal bristles small and insignificant. The wing very rounded, the wing-feathers narrow; the first primary short a little longer than half the third, which the second nearly equals; the third, fourth and fifth are subequal and longest, the sixth a little shorter and equal to the second, the seventh shorter still but longer than the secondaries which equal the first primary in length.

The tail-feathers are twelve in number, and broad, forming a large rounded wedge, the tail-coverts, upper and under, long, equalling the outer tail-feather in length. The feet are stout and fairly long with the outer face of the tarsus bearing six pronounced broad scutes, the hinder aspect bilaminate, a few scales at the tibial joint and heel; the toes are of medium length, thin, regularly scutellate, the middle toe longest, the outer and inner shorter and equal with their claws, about equal to the middle toe without claw; the claws are short, sharp and curved; the hind-toe is equal to the inner toe but the claw is longer than that of the latter but still short.

I am using the family name *Cinclosomatidæ* as obviously "*Timaliidæ*" is so meaningless and *Orthonycidæ* can scarcely with equity include these birds. However, this is merely a temporary title to use as a special Australian waste-paper basket until the affinities of each species are worked out. Thus in the present work I cannot easily rearrange the species and continue the progress satisfactorily, so am compelled to initiate small changes only and suggest the larger ones for rectification at a later opportunity. Thus, in the series here

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included, *Drymodes* is apparently closely allied to the present group, whereas *Pycnoptilus* and *Hylacola* should be transferred with *Calamanthus* to the neighbourhood of *Sericornis*. The exact relationship of *Psophodes* is quite unknown to me, and the *Pomatostomus* series may be a distant relation to the Cinclosomatine birds, but *Cinclorhamphus* and *Macleennania* are still difficult to place.

In the New Guinea forests is a bird, called the Mountain Thrush, which appears in the *Catalogue of the Birds in the British Museum* as *Cinclosoma ajax*, and for which the genus *Ajax* was proposed a long time ago. It is probably truly the New Guinea representative of true *Cinclosoma*, but should be separated as *Ajax ajax*, as it differs in structure, though showing the coloration of the present genus not much altered. Thus it has a longer, thinner, more compressed bill, with a more prominent tip; the rectal bristles are so minute and obscure as to suggest their complete absence; the wing is much smaller but has a similar formula and the primaries are strong, while the tail is shorter though the feathers are as broad. As a matter of fact, this group *Ajax* appears to have differed less in the mountains of New Guinea from the southern Australian typical *Cinclosoma* than the interior desert forms of "*Cinclosoma*" have on the continent of Australia.



H. Grönvold. del.

Witherby & Co.

CINCLOSOMA PUNCTATUM.
(SPOTTED GROUND-BIRD).

CINCLOSOMA PUNCTATUM.

SPOTTED GROUND-BIRD.

(PLATE 423.)

TURDUS PUNCTATUS Shaw, Zool. New Holland, pt. 3, pl. 9, 1795 : New South Wales.

Turdus punctatus Shaw, Zool. New Holland, pl. 9, 1794 : New South Wales ; Latham, Suppl. Index Ornith., p. XLIV., (after May 30) 1801 : New South Wales.

Punctated Thrush Latham, Gen. Synops. Suppl., Vol. II., p. 187, 1801.

Cinclosoma punctatum Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 220, 1827 ; Gould, Birds Austr., pt. 1 (Vol. IV., pl. 4), Dec. 1st, 1840 ; *id.*, Handb. Birds Austr., Vol. I., p. 433, 1865 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 332, 1883 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878 ; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 240, 1887 ; Ramsay, Tab. List Austr. Birds, p. 11, 1888 ; Hall, Key Birds Austr., p. 27, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 254, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 323, 1904 ; Mathews, Handl. Birds Austral., p. 69, 1908 ; Fletcher, Emu, Vol. IX., p. 82, 1909 ; Littler, Handb. Birds Tasm., p. 42, 1910.

Cinclosoma punctatum punctatum Mathews, Nov. Zool., Vol. XVIII., p. 330, 1912 ; *id.*, List Birds Austr., p. 197, 1913.

Cinclosoma punctatum neglectum Mathews, Nov. Zool., Vol. XVIII., p. 330, Jan. 31st, 1912 : Frankston, Victoria ; *id.*, Austral Av. Rec., Vol. I., p. 58, 1912 ; *id.*, List Birds Austr., p. 197, 1913 ; Belcher, Birds Geelong, p. 249, 1914 ; Purnell, Emu, Vol. XV., p. 41, 1915.

Cinclosoma punctatum dovei Mathews, Nov. Zool., Vol. XVIII., p. 330, Jan. 31st, 1912 : Tasmania ; *id.*, List Birds Austr., p. 197, 1913.

DISTRIBUTION. New South Wales ; Victoria ; South Australia ; Tasmania.

Adult male. Fore-part of head slate-grey ; crown, nape and hind-neck rust-brown more or less tinged with slate-grey ; entire back, rump, upper tail-coverts, and scapulars rust-brown with black central streaks to the feathers and tinged with slate-grey, especially on the upper tail-coverts and margined with chestnut on some of the inner greater upper wing-coverts and innermost secondaries ; upper wing-coverts, bastard-wing, and primary-coverts black, glossed with steel-blue, and tipped with white ; flight-quills dark brown fringed with grey or white on the outer webs ; middle tail-feathers pale brown, the lateral feathers black with greyish-brown on the inner webs and broadly tipped with white ; a supraloral streak of white which extends over the eye and along the sides of the crown ; ear-coverts similar to the crown ; lores, sides of face, throat, and upper fore-neck glossy steel-black, which encloses a patch of white on the hinder cheeks ; sides of neck and lower fore-neck slate-grey ; an

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irregular narrow band of black across the upper-breast. lower-breast and abdomen white; sides of body cinnamon-buff with black pear-shaped centres to the feathers; under tail-coverts black with isabelline margins; axillaries and under wing-coverts white more or less speckled with black, the greater series of the latter and quills below greyish-brown; lower aspect of tail blackish, or greyish-brown with broad white tips to the feathers. Eyes brown, bill black, feet light brown. Total length 273 mm.; culmen 16, wing 121, tail 118, tarsus 35. Figured. Collected on the Blue Mountains, New South Wales, in May 1915.

Adult female. Crown of head, hind-neck, sides of neck, and ear-coverts bronze-brown with a tinge of hoary-grey on the sides of the neck; back, scapulars, rump and short upper tail-coverts bronze-brown with blackish pear-shaped centres to the feathers; lesser upper wing-coverts black fringed with grey and minutely tinged with white, on some of the inner ones the grey edgings are replaced by bronze-brown like those of the median and greater series; bastard-wing and primary-coverts blackish edged with white on the outer webs at the tips; flight-quills dark brown fringed with grey or white on the outer webs of the primaries and with bronze-brown or rufous on the secondaries and some of the inner greater coverts; long upper tail-coverts and central tail-feathers bronze-brown; the outer feathers bronze-brown at the base followed by black and tipped with white except the two outer feathers on each side which are black tipped with white; an indicated supraloral streak which expands into a white line over the eye and continues along to the sides of the nape; chin and middle of throat whitish-grey; a few feathers behind the ear-coverts marked with whitish; sides of lower throat cinnamon-rufous; fore-neck and sides of lower neck pale slate-grey; breast and middle of abdomen buffy white; thighs dusky-grey; sides of body including the lower flanks, vent and under tail-coverts buff with black centres to the feathers; marginal under wing-coverts white, a few margined with black, the remainder dark grey, the inner ones blackish at the tips; under-surface of quills pale grey; lower aspect of tail grey in the middle, black at the sides, and white at the tip. Eyes bluish-purple, bill black, feet silvery-flesh. Total length 250 mm.; culmen 16, wing 106, tail 109, tarsus 35. Figured. Collected at Ringwood, Victoria, on the 25th of April, 1910.

Immature female. General colour of the upper-parts ochreous-brown with blackish centres and dark edges to the feathers, which imparts a more or less scalloped appearance; crown of head and nape paler than the upper back; a supraloral streak whitish, which widens out above the eye and extend along the sides of the crown; sides of the face and ear-coverts similar to the top of the head with pale shaft-lines to the feathers; hind-neck and sides of the neck ash-grey; lesser upper wing-coverts centred with white, the median series tipped with white; greater coverts blackish on the inner portion of the feathers and tipped with white, chiefly on the outer web; bastard-wing black edged with white on the apical portion; primary-coverts blackish edged with white at the tip of the outer web; flight-quills also blackish with white or greyish-white edges to the outer webs of the primaries and hazel-brown margins to the secondaries becoming richer in colour on the innermost; long upper tail-coverts and middle tail-feathers greyish-brown becoming black subterminally on the lateral feathers, which are tipped with white, both the black and white patterns increasing in extent on the outermost feathers; lores black; throat, breast, abdomen and thighs, cream-white with narrow blackish edges to the feathers; under tail-coverts buff with black shaft-lines to the outer feathers; axillaries and under wing-coverts cream-white with dark edges to the smaller marginal coverts; under-surface of flight-quills grey; lower aspect of tail grey and black with white tips to the feathers. Eyes purple, feet and legs brownish-grey, bill brown. Collected near Cobbora, New South Wales, on the 28th of September, 1914.

SPOTTED GROUND-BIRD.

Nest. Cup-shaped, loosely put together, composed of strips of bark, leaves and grasses. Lined with softer materials. Outside dimensions 5 inches by 3 deep. Inside 3 by $1\frac{1}{2}$ deep.

Eggs. Clutch, two (three). Whitish, spotted all over with dark brown and lavender spots. 34-35 mm. by 24.

Breeding-season. August to February.

WHEN Latham published his Second Supplement to his *General Synopsis of Birds*, he described from "New South Wales" the Punctated Thrush, *Turdus punctatus*, as a new species. Six years before, however, Shaw had figured the same bird and, moreover, given it the same name. The genus *Cinclosoma* was introduced by Vigors and Horsfield for this species, and their note on the species reads: "Mr. Caley says, that the weight of the male was 4 ounces. He adds: 'This species is by no means plentifully to be met with. It inhabits the small forest scrubs, and is frequently started from the ground. It appears to be more constantly on the ground than in the trees, taking a short flight on being disturbed, and then again alighting on the ground a little farther off.'"

Gould's notes read: "This is a stationary species, and is distributed over the whole of Tasmania and the eastern portions of Australia, from Moreton Bay to Spencer's Gulf. It gives a decided preference to the summits of low stony hills and rocky gullies, particularly those covered with scrubs and grasses. Its flight is very limited, and this power is rarely employed, except for the purpose of crossing a gully or passing to a neighbouring scrub; it readily eludes pursuit by the facility with which it runs over the stony surface and conceals itself among the underwood. When suddenly flushed it rises with a loud burring noise, like a Quail or Partridge. Its short flight is performed by a succession of undulations, and is terminated by the bird pitching abruptly to the ground almost at right angles. It seldom perches on the smaller branches of trees, but may be frequently seen to run along the fallen trunks so common in the Australian forests. The note merely consists of a low piping whistle, frequently repeated while among the underwood, and by which its presence is often indicated. In Hobart Town it is frequently exposed for sale in the markets with Bronze-wing Pigeons and Wattle-birds, where it is known by the name of Ground-Dove, an appellation which has doubtless been given, both from its habit of running and feeding upon the ground like the Pigeons and the circumstance of its flesh being very delicate eating: to its excellence in this respect I can bear testimony. The pectoral muscles are very largely developed, and the body, when plucked, has much the contour of a Quail. The young, which at two or three days old are thickly clothed with long black downy feathers, soon acquire the power of running, and at an early age assume the plumage of the adult, after which they are subject to no periodical change in

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their plumage. The stomach is very muscular, and in those dissected were found the remains of seeds and caterpillars mingled with sand."

Captain S. A. White has written me: "This was a plentiful bird once in our Mount Lofty Ranges, but of late years has become fairly rare; this is no doubt due to the gunner, domestic cats gone wild, and the fox. They prefer the stony, timbered ranges to flat country and build their nests in the Yarka (*Xanthorrea*) bushes. Their call at times, when calling to a mate, is loud and clear, and can be heard for some distance; while at other times it is low, musical and soft. They keep to the ground a great deal, but when flushed will fly some little distance and alight on the branch of a tree, raising their long tail, after the manner of a Pigeon, to balance themselves."

Mr. Thos. P. Austin's notes from Cobbora, New South Wales, read: "Rather rare, and only to be found in the very thickest scrubs, where it is extremely difficult to find them and study their habits. If disturbed they soon become very shy, and will not allow of a close approach, flushing before an intruder is within fifty yards of them; but when first come upon, they prefer to hide to taking flight, and will often allow themselves to be almost trodden upon, but if marked down and followed up, they become very shy as stated above. I have never found their nest, but have several times caught their young before being able to fly, so I think they must leave their nest before fully fledged. When the young are handled the old birds become very excited, running up to within a few yards, then darting away under some low bush, only to repeat the same thing over and over again. I have never heard an adult bird utter a note of any sort, even when I have been handling their young."

Mr. Edwin Ashby writes: "In 1886 I found this species common in the neighbourhood of Ballarat, Victoria. Here at Blackwood, South Australia, they are not numerous, but a few pairs nest in this district, making rather a deep nest of grass, etc., placed on the ground near the foot of some tree stem, laying two eggs. Throughout the Mt. Lofty Ranges it keeps mostly to the rises or higher ground, running from the intruder almost like a Quail, but if approached too near will rise on the wing with a whirr, fly about a hundred yards and settle again."

Mr. F. E. Howe's notes are as follows: "Is well distributed through the district, and to be seen at any time of the year. They are particularly fond of the stony rises where there is a good covering of tussocks well protected by saplings. On a hot day they lie in the shade and among the suckers of the eucalypt, and are more readily flushed; they rise with a flapping of the wings, and go away with a quick and undulating flight (generally about one hundred yards), and on alighting run quickly forward. We have often seen them

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alight on the limb of a tree and survey the intruder. They breed fairly early; young been seen on Oct. 28, 1906, in a nest placed on the ground under a fallen limb. Another nest containing eggs that were just 'chipping out' was noted on Jan. 1, 1909."

Miss J. A. Fletcher has written me from Tasmania: "Fairly common in this open forest country. In 1908 one of these birds slept at night in a deserted nest of a Dusky Robin. The earliest nest which came under my notice was on 8th October, and contained two eggs. On Nov. 29 I flushed a pair from fallen tree; they had three half-grown young ones with them. From my observations the bird I was watching laid every other day."

Mr. J. W. Mellor has also sent me a note: "This bird I have seen in the Mount Lofty Ranges, South Australia, where it loves the thickly timbered parts where stringy bark eucalyptus affords good shelter; it is a somewhat shy bird, and does not care to have its nest meddled with or even looked at, and I have known it to dismantle its nest and peck the eggs to pieces, even though just hatching, merely because someone looked into the nest but never in any way touched or interfered with the structure."

This fine bird has a comparatively restricted range, occurring only in the south-east, ranging from New South Wales to South Australia, but also occurring in Tasmania. This is rather remarkable, as so few of this group are found extending to that country that we may conclude this was an early migrant into the Australian continent; it is also of importance when we search for its allies, as the Chestnut-backed species, which seems to be its representative, though obviously specifically separable, must be considered strictly congeneric. The Cinnamon species, however, which also occur throughout the dry interior, can be regarded as of generic distinction.

No subspecies of the present species were named until I prepared my "Reference List" in 1912, when I separated three, as follows:

Cinclosoma punctatum punctatum (Shaw).

New South Wales.

Cinclosoma punctatum neglectum Mathews.

Victoria and South Australia.

"Differs from *C. p. punctatum* in its darker coloration, but paler than *C. p. dovei*." Type from Frankston, Victoria.

Cinclosoma punctatum dovei Mathews.

Tasmania.

"Differs from *C. p. punctatum* in its smaller size and darker upper coloration. Wing 109 mm.; typ. av. 116 mm."

Nothing has been added nor altered since that date, so that the above arrangement is in agreement with present usage.

CINCLOSOMA CASTANOTUM.

CHESTNUT-BACKED GROUND-BIRD.

(PLATE 424.)

CINCLOSOMA CASTANOTUS Gould, Birds Austr., pt. I., Dec. 1st, 1840 : belts of the Murray, South Australia.

*Cinclosoma castanotus** Gould, Birds Austr., pt. I. (Vol. IV., pl. 5), Dec. 1st, 1840 ; *id.*, Proc. Zool. Soc. (Lond.) 1840, p. 113, May, 1841 ; *id.*, Handb. Birds Austr., Vol. I., p. 435, 1865 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 333, 1883 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878 ; *id.*, Tab. List Austr. Birds, p. 11, 1888 ; Hall, Key Birds Austr., p. 27, 1889 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 256, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 325, 1904 ; Milligan, Emu, Vol. III., p. 222, 1904 (M.-W.A.) ; McLennan, *ib.*, Vol. VII., p. 162, 1908 (Vic.) ; Mathews, Handl. Birds Austral., p. 69, 1908 ; Howe, Emu, Vol. IX., p. 231, 1910 (Vic.) ; Whitlock, *ib.*, Vol. XI., p. 241, 1912 (S.W.A.) ; S. A. White, *ib.*, Vol. XIII., p. 26, 1913 (S.A.) ; Chandler, *ib.*, p. 38 (Vic.) ; S. A. White, *ib.*, Vol. XVIII., p. 197, 1919 (S.A.).

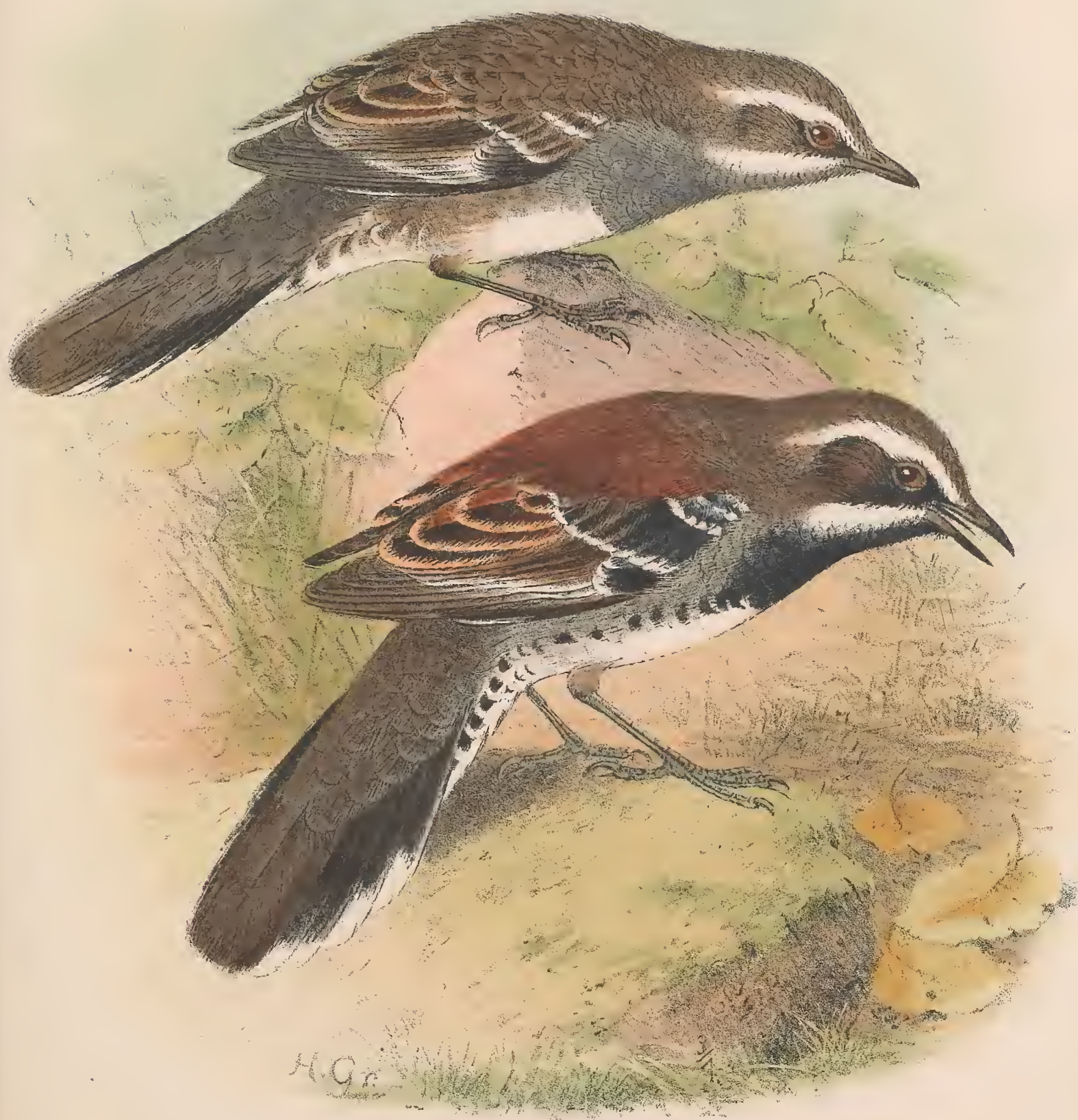
Cinclosoma castanotum castanotum Mathews, Nov. Zool., Vol. XVIII., p. 330, 1912 ; *id.*, List Birds Austr., p. 197, 1913 ; S. A. White, Emu, Vol. XIV., p. 188, 1915 (C.A.).

Cinclosoma castanotus dundasi Mathews, Nov. Zool., Vol. XVIII., p. 330, Jan. 3rd, 1912 : Lake Dundas, West Australia ; *id.*, List Birds Austr., p. 197, 1913.

DISTRIBUTION. Adjoining parts of interior of New South Wales, Victoria and South Australia, across to South-west Australia.

Adult male. Crown of head, ear-coverts, hind-neck, sides of neck, and mantle dark russet-brown, slightly tinged with grey on the sides of the neck and hind-neck and with dark shaft-lines to the feathers on the top of the head and mantle ; back, rump and scapulars deep chestnut ; upper tail-coverts dusky-grey with a tinge of chestnut ; middle tail-feathers dark brown, the lateral ones black, broadly tipped with white ; upper wing-coverts, bastard-wing and primary-coverts black tipped with white, some of the inner greater series of coverts broadly margined with greyish-brown or rufous ; flight-quills dark brown, some of the primaries edged with white on the outer webs, the secondaries broadly margined with pale chestnut ; lores and feathers below the eye black ; a somewhat broad line above the eye and along the sides of the crown and another from the gape to the sides of the neck white ; sides of breast, and sides of neck slate-grey ; sides of body and thighs russet-brown ; fore-neck

* Also spelt *castanotum* and *castaneonotum*.



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CINCLOSOMA CASTANOTUM
(CHESTNUT-BACKED GROUND-BIRD)

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and upper-breast glossy black which extends in a line along the sides of the lower-breast; lower-breast, middle of abdomen, vent and under tail-coverts, white irregularly marked with black; marginal under wing-coverts white with irregular dark markings, the inner ones greyish-brown like the under-surface of the flight-quills; lower aspect of tail blackish with white tips to the feathers. Bill black, eyes warm brown, feet lead-grey. Total length 240 mm.; culmen 15, wing 101, tail 101, tarsus 34. Figured. Collected at Lake Dundas, West Australia, on the 16th of July, 1905, and is the type of *Cinclosoma castanotum dundasi*.

Adult female. General colour of the upper-surface greyish-brown tinged with rufous, including the top of the head, sides of the face, sides of neck, back, scapulars and rump; upper tail-coverts grey, somewhat darker on the middle of the feathers; upper wing-coverts like the back with white tips to the feathers the inner webs of the greater series blackish; bastard-wing and primary-coverts black tipped with white; flight-quills blackish-brown irregularly marked with white on the outer webs of some of the primaries and white at the base of all of them; middle tail-feathers rather darker than the back; the outer ones black broadly tipped with white; a supraloral streak of white which extends over the eye and along the sides of the crown; chin and a line on each side of the throat white, which extends on to the sides of the neck; throat, fore-neck, breast and sides of breast slate-grey; abdomen, vent and under tail-coverts white, extensively marked with brown on the last; thighs and bases of the feathers of the abdomen and vent dusky-grey; sides of body similar to the back; axillaries and under wing-coverts white, the greater series of the latter greyish-brown like the under-surface of the quills; lower aspect of tail blackish with white tips to the feathers. Bill purple-horn; eyes red-hazel; feet and legs bluish-purple. Wing 96 mm.; culmen 15, tail 93, tarsus 30. Figured. Collected at Broome Hill, South-west Australia, on the 10th of August, 1908.

Immature male. Crown of head, hind-neck and upper back pale chestnut-brown tinged with grey and blackish edgings, or centres, to the feathers becoming uniform chestnut on the lower back and rump; upper tail-coverts greyish-brown; lesser and median upper wing-coverts greyish-brown with white lanceolate markings at the tips; the greater series blackish with buff outer margins, becoming whitish at the tips of the feathers; bastard-wing and primary-coverts blackish edged and tipped with white on the apical portion; flight-quills also blackish with white bases to the primaries on the outer webs and narrow whitish edgings on the apical portion, outer margins of secondaries rufous-brown; middle tail-feathers dark brown becoming darker on the lateral feathers which are broadly tipped with white; a white superciliary line from the hinder portion of the nostrils over the eye and widening out on the sides of the crown; feathers in front and below the eye brown with pale shaft-streaks to the last; lower cheeks, chin and throat, white with dark margins to the feathers; breast, sides of breast, sides of body and thighs with dark edges to the feathers; abdomen and vent white; under tail-coverts white on the inner webs and greyish-brown on the outer ones; under wing-coverts for the most part white, with a few greyish feathers on the greater series; under-surface of flight-quills pale brown with pale inner edges; lower aspect of tail blackish-brown with white tips to the feathers. Eyes hazel, feet and legs grey; bill purple-flesh. Collected at Broome Hill, South-west Australia, on the 18th of November, 1906.

Male fledgeling. Crown of head, hind-neck, sides of neck, and mantle ochreous-brown tinged with grey and dark fringes to the feathers, which are wider and more conspicuous on the mantle; lores and a broad line over the eye white; the nestling down is still adhering to the feathers on the sides of the crown, hind-neck, and the sides of the neck which are dusky-brown in colour; ear-coverts dark brown with slightly paler shaft-lines; scapulars and feathers of the back tinged with dull chestnut-brown and broadly margined with black; rump uniform chestnut-brown; upper tail-coverts,

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lower flanks and thighs covered with down which is dusky-brown in colour ; wings ochreous-brown or blackish-brown with buffy white tips or whitish edgings to the feathers and downy tips to some of them ; central tail-feathers dark brown with a good deal of white on the lateral feathers ; moustachial streak white which extends on to the sides of the neck ; throat, breast and sides of body grey with dark edgings to the feathers and a wash of ochreous-buff on the last ; abdomen white ; thighs dusky-brown with down still adhering ; under tail-coverts cream colour ; under-surface of tail for the most part white. Eyes bluish, bill brown, feet slate. Collected at Lingerandye, Victoria, on the 16th of September, 1913.

Nestling male. Crown of head and back bronze-brown with dark edgings to the feathers which are narrow on the head and wide on the upper back ; lower back rust-brown ; rump, and upper tail-coverts, tail, thighs and under tail-coverts covered with down which is dusky-brown ; wings dark brown the feathers tipped and edged with buffy white and more or less down still adhering to the tips of the primaries ; tail dark brown with white tips to the outer feathers ; sides of face dark brown with pale shaft-lines to the feathers ; a buffy white supraloral streak which extends over the eye and along the sides of the crown, the dusky down is still adhering to these parts, hind-neck, sides of neck, and sides of face ; cheeks and a line extending on to the sides of the neck white ; chin, throat, and breast dusky-grey with dark margins to the feathers ; sides of the body similar ; middle of abdomen white ; eyes bluish, bill bluish-black, feet slaty-blue. Collected on Sindors Hill, South Australia, on the 16th of August, 1914.

Nestling female. Mantle and back chestnut with black tips to some of the feathers ; the approaching wing-feathers blackish tipped with white ; crown of head, sides of face, hind-neck, a portion of the wings, rump, and tail covered with down which is smoke-brown in colour ; chin and throat black with white sheaths to the feathers ; breast, sides of the body and thighs white, or buffy white with black tips to the feathers ; middle of abdomen buffy white. Eyes hazel : bill purple-horn, feet and legs blue-grey. Collected on Broome Hill, South-west Australia, on the 21st of October, 1908.

Nest. A hollow in the soil, loosely lined with twigs, strips of bark and dead leaves, sheltered by a dead bush. Measurement inside about 3 inches. (W. D. Campbell.)

Eggs. Clutch, two. Whitish, spotted all over, more at the larger end, with brown and lavender. 30-32 mm. by 21.

Breeding-season. August to December.

GOULD, who described this beautiful bird, wrote : " The habits and economy of the present bird closely resemble those of the Spotted Ground-Thrush ; but the more level plains, particularly those that are studded with clumps of dwarf trees and scrubs, would appear to be the situations for which it is more peculiarly adapted, at least such was the character of the country in the Belts of the Murray where I discovered it. On the other hand, it is stated in the notes accompanying specimens received from Swan River, that ' it is rarely seen in any but the most barren and rocky places. The white gum forests, here and there studded with small patches of scrub, are its favourite haunts. It is only found in the interior ; the part nearest to the coast, where it has been observed, being Bank's Hutts, on the York Road, about fifty-three miles from Fremantle.' Its disposition is naturally

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shy and wary, a circumstance which cannot be attributed to any dread of man as an enemy, since it inhabits parts scarcely ever visited either by the natives or Europeans. Few persons, I may safely say, had ever discharged a gun in that rich arboretum, the Belts of the Murray, before the period of my being there ; still the bird was so difficult of approach that it required the utmost exertion to procure specimens. They were generally observed in small troops of four or six in number, running through the scrub one after another in a line, and resorting to a short low flight, when crossing the small intervening plains. It runs over the surface of the ground with even greater facility than *C. punctatum*. In its mode of flight and nidification it assimilates so closely to the Spotted Ground-Thrush as to render a separate description superfluous. The stomach is extremely muscular, and the food consists of seeds and the smaller kind of *Coleoptera*."

Mr. Edwin Ashby also states : "I have found this bird numerous in the Mallee near Mannum and also in the great stretch of Mallee to the east of the River Murray especially round Karunda. Its habits are similar to those of the preceding (Spotted Ground-Bird). I also met with the West Australian form in the open Salmon gum country near Broome Hill, and at Callion, and its habits are quite similar."

Mr. F. E. Howe has sent me the following note : "This beautiful form is very plentiful all through the Mallee scrubs. I first made its acquaintance at Pine Plains, 1907, in company with Messrs. Mattingley, Ross and McLennan, when a few pairs were flushed. During September 1908 I flushed a female from a nest, containing an egg, which she subsequently deserted. Mr. Ross and I again visited Kow Plain during October 1909, and here we found them very plentiful. The call-note is a soft and wheezing one, and is exactly like that of *C. punctatum*. We flushed many from their nests, which contained a pair of young each. They rise quickly and with rather a loud flapping or whirring of the wings, and have a jerky and undulating flight. They never appeared to fly more than about fifty or sixty yards, and after alighting ran very quickly with the head low down, but when feeding or walking quietly they have the same habit as the Pigeons of distending the neck. Young that were just hatched and up to a few days old were covered with long dark slate-coloured down, the gape being white and the mouth orange ; others about ten days old were seen, and the gape and mouth were still the same ; the eyebrow was white and a white line extended from the gape across the cheeks ; the wings, brownish in colour, were speckled with white and the breast was also mottled ; abdomen white ; eyes black ; bill and feet of a light fleshy colour. We caught a pair that had just left the nest, and in them the gape had assumed a darkish colour. These were made to utter cries, which soon brought the parents about, when

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they uttered the same soft note, and, holding the tail erect and fanned and the wings drooped, ran excitedly around us in great distress."

Captain S. A. White's notes read: "This bird, unlike the preceding species, frequents the flat and sandy country often covered in dense mallee scrub. I have never met with it upon stony country. Like other members of the family, it spends much of its time upon the ground and builds its nest close to some fallen dead branch, the nest being composed of bark. The range of this bird is very extensive, being over all the drier portions of the State."

Mr. Tom Carter's observations on this species in West Australia read: "The Chestnut-backed Ground Thrush occurs locally on scrubby sand plain or rough country in inland districts, and is a species that is easily overlooked from its seclusive habits and method of running swiftly to the shelter of bushes or scrub. Sometimes a bird will rise wildly, and at other times almost allow itself to be trodden on. When they are flushed, their wings give a distinct 'whirr,' similar to that of a Quail. The flight is usually not very far, to the shelter of a bush, and under this a bird will sometimes remain motionless, and allow an approach of a few feet (trusting to its protective colouring?). They occur in the 'Marlock,' scrub, and sand plains, from the Stirling Ranges to Kellerberin, from personal observation. A few used to live on a strip of rough country, on the boundary of my Broome Hill land, and bred there, the breeding-season apparently being in September and October. One nest containing two eggs was found under a bush quite close to the edge of a road (not a main road, but still daily traffic on it) early in October, with two eggs. A fully-fledged young was shot on Dec. 18, 1906, and an adult male, moulting, on Dec. 23rd. Two half-grown young were found in a nest, Oct. 19, 1908, with the whole of mantle, including interscapular region, bright chestnut. These birds have a peculiar, low piping whistle, which is usually uttered as they are running away from one on the ground."

Milligan, writing on a trip to the Wongan Hills, West Australia, states: "We were fortunate in observing in the same gully, a pair of *Cinclosoma castanonotum*. To observe them, however, was one matter, but to secure them was quite another. We found them always in the same spot, but after once flushing them, it was almost impossible to sight them again. Hour after hour and day after day were spent in earnest but unsuccessful quest until on the last day but one, Mr. Conigrave, after an hour's waiting, managed to shoot a male. A second bird was shortly afterwards secured, which proved to be a young male, and subsequent to that again I shot a young female. The thick undergrowth afforded them the best of concealment, and they were never at any time slow in availing themselves of it. To accentuate the difficulty of capture, they do not utter either an alarm-note or song. The only sound we

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heard them make was a faint 'tsee-tsee,' and this only appeared to be a call-note to the young after we had separated them—a habit common with *Turnix varia* in similar circumstances. The plumage of the young did not, as might have been thought, resemble the adult female. Instead of the light slate-grey breast of the latter, they were blotched diffusely with dark brown and greyish-white. The back, however, showed the cinnamon colour very distinctly. Probably they assume another phase of plumage more nearly approaching that of the female before they reach maturity. The species seems not only local in habit, but very sparsely distributed. Excepting those mentioned we only saw another pair, and then not in the mountains but in some casuarine scrub on the brackish salt bush plains."

McLennan's notes read: "I have been watching the antics or habits of the Chestnut-backed Thrush a lot of late, and have seen a good many of the birds in my rambles. These birds do not associate with any other of the feathered tribe. They live for the most part in couples, which presumably pair for life, subsisting upon the insects and other food to be found in the vicinity of their favourite haunts—the low shrubs and undergrowths in the arid regions of the Mallee. Being of a rather shy nature, they do not wander far from the same neighbourhood. The characteristic feature of these birds is the peculiar graceful motion they have of moving their heads and necks backwards and forwards when standing on the watch. The nest is always built on the ground, near the butt of a mallee bush or under some low shrub. The clutch is from one to three. When flushed, the bird flies but a short distance, and again settles. It resembles in some of its habits the Scrub Robin."

Whitlock recorded: "*Cinclosoma castanonotum* does not extend its range much farther south in this State (West Australia) than the Stirlings, where it is by no means common. At one of my camping places, in a large tract of white gum timber, I found one or two pairs, and had the good fortune to walk right up to a sitting bird, which flew off her eggs close to my feet. The nest was a deep excavation in a very sparse tuft of fine grass, which in no way hid it from view. The interior was neatly lined with fine, flat grasses. The nest contained two fresh eggs. The female was very wary. I wished to photograph her near the nest, but she exhausted my patience, and would not come nearer than within twenty or thirty yards, where she remained sheltered by some low bush. This nest was in the open, and away from any tree trunk or other natural shelter."

Captain S. A. White has recorded: "Met with these birds at the western end of (the Gawler) Ranges and on Donald's Plain. In the mallee a nest was discovered, situated in a depression in the ground close against a fallen mallee. The nest was constructed of strips of bark and

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a few dry straws. The female sat very closely on two eggs. She allowed my wife almost to tread upon her. The bird's coloration harmonised so wonderfully with the dead timber and bark that it was difficult to detect her."

Chandler's notes read: "Often met with in sapling mallee (on the Kow Plains, Victoria). We had an interesting experience with a female of this species. A nest was found on 26th September at the foot of a mallee sapling; it contained two young birds. When the nestlings were handled the female came within three inches of us as we knelt on the ground. At short intervals, while running round us, the bird emitted a puffing sound, like that made by wind being blown through pursed lips. A nest containing incubated eggs was obtained near the end of September. These birds are fond of working over ground where there has been a recent fire."

Some birds with an east to west range in the interior of Australia show easily recognisable subspecies, while others do not. In the present case I separated the western form as *C. c. dundasi* as being darker, the red back more extensive and the bill shorter. This may still be recognised, so that the two forms hitherto listed by me can be maintained, *C. c. castanotum* Gould from East Australia (inhabiting the interior of New South Wales, Victoria and South Australia) and *C. c. dundasi* Mathews, West Australia, inhabiting the southwestern interior only.

GENUS—SAMUELA.

SAMUELA Mathews, Austral Av. Rec., Vol. I.,
pt. 5, p. 112, Dec. 24th, 1912. Type (by
original designation) *Cinclosoma cinnamomeus* Gould.

THE diagnosis I gave when I separated this genus reads : “ Differs from *Cinclosoma* in its weaker bill, legs and feet and in its differently shaped tail and wing ; the tail is comparatively short and rounded, not long and fan-shaped ; the wing has the second primary almost equal to the succeeding three which are longest and subequal, and longer than the sixth ; in *Cinclosoma* the second primary is noticeably shorter than the third and also shorter than the sixth while the first primary is proportionately longer than in that genus.”

As I have pointed out, this group of desert birds living in the interior of Australia have altered more from the more coastal typical *Cinclosoma* of southern Australia than the form at present restricted to the mountains of New Guinea.

The birds have become smaller with longer wings, shorter tail, and thinner bills. It is possible that these represent better the size of the original stock, and that *Cinclosoma* in the south and *Ajax* in the extreme north have each become larger, and that the coincidence in size, etc., is due to convergence. It is certain that *Cinclosoma* must have been a very early migrant into Australia to have penetrated into Tasmania, and also into West Australia from the south, as apparently that is the mode of occurrence of the second species which extends into the west along the south. The interior forms here dealt with range farther north across the interior from east to west, and are replaced in the north coastal districts by *Drymodes superciliaris*, which has a similar peculiar range that will be noted under that species.

Order PASSERIFORMES.

No. 504.

Family CINCLOSOMATIDÆ.

SAMUELA CINNAMOMEA.

CINNAMON GROUND-BIRD.

(PLATES 425-426.)*

CINCLOSOMA CINNAMOMEUS Gould, Proc. Zool. Soc. (Lond.), 1846, p. 68, Oct.: South Australia (Finke River).

Cinclosoma cinnamomeus† Gould, Proc. Zool. Soc. (Lond.), 1846, p. 68, Oct.; *id.*, Birds Austr., pt. xxv. (Vol. IV., pl. 6) Dec. 1st, 1846; *id.*, Handb. Birds Austr., Vol. I., p. 437, 1865; Diggles, Ornith. Austr., pt. xvii., 1868; Ramsay, Proc. Linn. Soc., N.S.W., Vol. II., p. 187, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 334, 1883; Ramsay, Tab. List Austr. Birds, p. 11, 1888; Hall, Key Birds Austr., p. 27, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 256, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 327, 1904; Mathews, Handl. Birds Austral., p. 69, 1908; *id.*, Nov. Zool., Vol. XVIII., p. 331, 1912; S. A. White, Emu, Vol. XIII., p. 26, 1913 (S.A.).

Cinclosoma castaneothorax‡ Gould, Proc. Zool. Soc. (Lond.), 1848, p. 139, June 1st, 1849: Darling Downs "N.S.W.," *i.e.* Queensland; *id.*, Birds Austr. Suppl., pl. 32 (pt. II.), Sept. 1st, 1885; *id.*, Handb. Birds Austr., Vol. I., p. 438, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 335, 1883; Ramsay, Tab. List Austr. Birds, p. 11, 1888; Hall, Key Birds Austr., p. 27, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 257, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 330, 1904; Le Souëf, Emu, Vol. VIII., p. 63, 1908; Mathews, Handl. Birds Austral., p. 69, 1908.

Cinclosoma erythrothorax Sharpe, Ibis, 1881, p. 605, Oct.: emendation of *castaneothorax* only.

Cinclosoma marginatum Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 336, (pref. July 1st) 1883: North-west Australia; Ramsay, Tab. List. Austr. Birds, p. 11, 1888; Hall, Key Birds Austr., p. 28, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 258, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 330, 1904; Mathews, Handl. Birds Austral., p. 69, 1908; North, Rec. Austr. Mus., Vol. VII., p. 322, pl. xvii., 1909; Whitlock, Emu, Vol. IX., p. 195, 1910 (M.-W.A.); Gibson, *ib.*, Vol. X., p. 70; Whitlock, *ib.*, p. 71.

* The Plates are lettered *Samuela cinnamomea* and *S. marginata*.

† Also written *cinnamomeum*.

‡ Also spelt *castaneithorax*.



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Cinclosoma castaneothorax castaneothorax Mathews, Nov. Zool., Vol. XVIII., p. 331, 1912 ;
id., List Birds Austr., p. 198, 1913.

Cinclosoma castaneothorax marginatum Mathews, Nov. Zool., Vol. XVIII., p. 331, 1912 ; *id.*,
List Birds Austr., p. 198, 1913.

Cinclosoma castaneothorax nea Mathews, Nov. Zool., Vol. XVIII., p. 331, Jan. 31st, 1912 :
Day Dawn, West Australia ; *id.*, List Birds Austr., p. 198, 1913.

Samuela cinnamomea Mathews, List Birds Austr., p. 198, 1913 ; S. A. White, Emu, Vol.
XIV., p. 188, 1915 (C.A.).

Samuela cinnamomea samueli Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April
7th, 1916 : Gawler Ranges, South Australia.

DISTRIBUTION. The interior of Australia, north-east to the Darling Downs, Queensland,
to the north-west, to the south-west to Day Dawn, West Australia, and to the south to
Gawler Ranges, South Australia.

Adult male. Crown of head and nape, dark earth-brown with dark shaft-lines to the
feathers ; ear-coverts similar but no dark shaft-lines ; back, scapulars and margins
of secondary-quills, rufous-chestnut like the rump and upper tail-coverts ; upper
wing-coverts, including bastard-wing and primary-coverts black with white tips to
the feathers ; flight-quills dark brown becoming darker and inclining to black on the
secondaries, outer margins of primaries more or less white ; tail black tipped with
white which increases in extent towards the outermost feather on each side and
absent from the pair next to the central pair, the two middle feathers rufous
fading into brown on the apical portion ; lores and a line below the eye, which
extends on to the sides of the neck, black ; a broad line of white from above
the eye along the sides of the crown, a somewhat similar line but wider, from
the gape of the bill to the sides of the neck ; chin and throat blue-black with a
steel gloss ; a band across the fore-neck and sides of the body cinnamon-chestnut ;
breast black ; abdomen and vent white ; the feathers on the sides of the abdomen
and lower flanks marked with black and white ; under tail-coverts black tipped
and margined on one side with white ; axillaries and marginal under wing-coverts
white, the inner coverts and greater series greyish-brown like the under-surface
of the quills ; lower aspect of the tail black with white tips to the feathers. Eyes
dark brown ; bill black, feet lead-grey. Total length 220 mm. ; culmen 13, wing
91, tail 95, tarsus 29. Figured. Collected at Day Dawn, West Australia, on
the 11th of July, 1903.

Adult female. Crown of head, hind-neck, sides of neck, and ear-coverts earth-brown ; a
white line which commences above and in front of the eye and extends along the
sides of the crown ; back, rump, upper tail-coverts, scapulars, and margins of
secondary-quills rufous-chestnut ; upper wing-coverts including the bastard-wing
and primary-coverts black tipped with white, the major coverts more or less rufous-
brown on the outer margins ; tail, the two central feathers rufous fading to brown
on the apical portion, the next pair blackish-brown and the remainder black tipped
with white ; the short feathers surrounding the eye dark brown tipped with white ;
throat buffy-white ; fore-neck and breast drab-grey tinged with cinnamon-rufous ;
sides of the body similar to the back ; middle of abdomen whitish ; thighs dusky ;
under tail-coverts cinnamon-buff with dark brown centres to the feathers ; axillaries
and under wing-coverts white, the inner coverts and greater series greyish-brown like
the quill-lining ; lower aspect of tail blackish with cream-white tips to the outer feathers.
Eyes red-brown ; bill and interior of mouth black, feet and legs very deep lead-grey.
Total length 217 mm. ; culmen 14, wing 97, tail 101, tarsus 31. Figured. Collected
at Borewell, East Murchison, West Australia, on the 1st of September, 1909.

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Adult male. General colour above cinnamon-rufous, paler on the head and inclining to grey on the hind-neck; upper wing-coverts including the bastard-wing and primary-coverts black tipped with white, some of the inner upper wing-coverts like the back; flight-quills dark brown with pale outer margins to some of the primaries, margins of secondary-quills like the back; central tail-feathers like the back becoming darker and inclining to black on the outer ones which are tipped with white; lores black; a supraloral streak which extends over the eye and along the sides of the crown buffy-white; ear-coverts like the back; sides of throat and cheeks white which extends on to the sides of the neck, where it is more or less intermixed with black on the upper margin; chin, throat, and a band across the breast black with a steel-blue gloss, some of the feathers slightly tipped with whitish; the feathers skirting the black on the lower throat and a band across the breast white like the middle of the abdomen and middle of the fore-neck; sides of breast and sides of body pale cinnamon-rufous, some of the feathers on the lower flanks have blackish shaft-streaks; under tail-coverts cream-white irregularly marked with black; under wing-coverts cream-white, the greater series and under-surface of flight-quills greyish-brown with a buffy tinge on the margins of the latter; lower aspect of tail black with white tips to the feathers. Bill black, eyes brown; feet ashy-grey. Total length 220 mm.; culmen 15, wing 91, tail 86, tarsus 31. Figured. Collected west of Todmorden, South Australia, in July 1914.

Adult female. Back, outer aspect of wings, middle tail-feathers and sides of the body cinnamon-rufous; top of the head, ear-coverts, and hind-neck clay-brown with dark centres to the feathers on the crown; lores buff, chin and throat buffy-white; upper wing-coverts and inner secondary-quills like the back, the median and greater series of coverts fringed with white at the tips; bastard-wing and primary-coverts dark brown marked with white at the tips; flight-quills also dark brown with buff margins to the outer webs of some of the feathers, the cinnamon-rufous margins to the secondaries increase in width towards the innermost; outer tail-feathers blackish tipped with white and more or less rufous at the base; breast pale drab-grey; thighs dusky-grey; middle of abdomen white; under tail-coverts white, with rufous on the outer webs; under wing-coverts cream-white, the greater series and quill-lining greyish-brown; lower aspect of tail blackish with white tips to the feathers. Bill black; eyes dark; feet slate-black. Total length 195 mm.; culmen 15, wing 88, tail 75, tarsus 27. Figured. Collected at Macumba, South Australia, on the 5th of August, 1913.

"The immature male has the head and hind-neck brown, the lesser and median young wing-coverts black with pale buffy-white tips, the greater coverts cinnamon-rufous, the tips of the outermost series washed with cinnamon-rufous; lores whitish with narrow dusky tips; the glossy black patch on the centre of the throat is smaller and mottled with white; fore-neck pale brown with only a wash of cinnamon in the centre; the black band on the upper-breast is smaller and duller in colour, and the sides of the breast destitute of the line of black streaks in the feathers." (North.)

Nest. "Open cup-shaped . . . formed of a few twigs and dead leaves. Placed at the foot of a low bush." (Cowle.)

Eggs. "Clutch, two. Ground-colour greyish-white to brownish-grey over which is distributed large blotches and longitudinal streaks of umber-brown, and a few underlying markings of dull bluish-grey. 28 mm. by 20." (North.)

Breeding-season. March, April. (North.)

GOULD recorded nothing concerning the habits of this bird when he described it, and later only wrote: "For our knowledge of this new *Cinclosoma* we are



H. Grönvold, del.

SAMUELA MARGINATA
(GROUND BIRD).

Witherby & C^o.

CINNAMON GROUND-BIRD.

indebted to the researches of that enterprising traveller Captain Sturt, who procured a single specimen during his lengthened sojourn at the Dépôt in that sterile and inhospitable region, the interior of South Australia. Since that date many other examples have been sent to Europe, which have been collected in other parts of the country."

Captain S. A. White has written me: "This is an interior bird found in the driest portions of Australia and, with few exceptions, upon the stony tableland country. It runs with great rapidity over the Gibber plains, and the reddish-brown back harmonises most wonderfully with the oxide of iron staining of the stones, and when they partly crouch forward as they run only the upper part is visible."

He had recorded: "A pair of these rare birds was met with on the side of a spinifex-covered hill near the shores of Lake Gairdner. One bird ran with great rapidity under an acacia bush, and stood perfectly motionless to avoid detection, and when flushed alighted under another bush and squatted in the dead leaves."

Two years after Gould had described his *C. cinnamomeus* he added *Cinclosoma castaneothorax*, writing: "For a knowledge of this richly-coloured and very distinct species of Ground-Thrush, science is indebted to Charles Coxen, Esq., of Brisbane, who discovered it in the scrubby belt of trees growing on the tableland to the northward of the Darling Downs. In size it nearly equals the *Cinclosoma castaneonotum*, but differs from that bird in the buffy stripe over the eye, in the colouring of the back, and in the band of chestnut-brown which crosses the breast. To my regret, only a single male specimen has yet been forwarded to me."

Mr. Edwin Ashby has written me: "I have a male that was collected at Black Range, Murchison, W.A., 7/10/99, which is so closely similar to the Cinnamon Ground-Bird that I cannot think other than that it is a subspecies of that bird. It is larger, less white, longer tail, and the cinnamon colour continued almost up to the crown of head."

Writing about the birds on the East Murchison, mid-West Australia, Whitlock recorded: "Black-vented Ground-Bird (*Cinclosoma marginatum*). I was well acquainted with this species, having obtained half a dozen specimens in the neighbourhood of Lake Austin some six years previously. A pair of these have been mounted, and for several years have been on exhibition in the Perth Museum. Unfortunately, I left Lake Austin for the neighbourhood of Yalgoo, a locality much nearer the coast, before the breeding-season had really commenced. On arriving at Wiluna, I soon found my birds in the ferruginous country in and around the auriferous belt, and, not being a shy bird, I have more than once seen individuals within a quarter of a mile

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of Wiluna post-office. To find the nest and eggs of this species was one of the objects of my journey. But it was not immediately around Wiluna that I was successful. The reason of this was not far to seek; I was in another locality at the best time of the breeding-season. However, there were a few pairs to be found in the low ranges bordering the spinifex plain near Bore Well. Having previously shot specimens, to be certain the local birds were not referable to *C. cinnamomeum*, I contented myself with watching the pair nearest to my camp. Soon after sunrise the male perches himself on some dead branch, or other point of vantage, and utters his rather plaintive and monotonous call. This may be represented by the vowels *i* and *e*. The *i* is uttered short, and is rather rapidly repeated, the final *e* being long-drawn and half a note higher in tone. It may be perhaps expressed as follows: 'I-ī-ī-ī-ē.' This call is repeated at short intervals, and two or three males will often reply to one another. Provided the bird remains at the same place, I never found any difficulty in locating the sound. It varies a little in its apparent distance through the bird turning its head about. At times the call is uttered from the ground, and the male bird frequently takes a run between each call. It is not so easy to locate the sound under these conditions. The method I adopted was to take a compass bearing on the spot from which the sound appeared to travel, and then to lay a straight stick, pointing in the right direction. I repeated this for several mornings, and, estimating the distance, I followed my line, and almost walked right up to the nest. The female sat close, but flew right away when I flushed her. The nest was on an ironstone flat, in fairly open country, but close at hand was a very shallow watercourse, with a line of large mulga and other bushes growing along its banks. In the shade of these bushes herbaceous plants were plentiful, and the nest itself was sheltered by a very small grey-leaved salt bush of not more than a foot in height, and barely large enough to shade the nest from the morning sun. The nest was a moderately deep depression in the ground, from its neatness and even shape probably scratched out by the female bird. It was lined with strips of soft bark and a few acacia leaves, or leaves of the gidgi-tree. The eggs were two in number, and of a very pale buff in ground-colour; the markings were small, but numerous, and in the form of dots of irregular shape, distributed all over the shells, but more numerous at the larger end. In colour they were of various shades of brown, with a few underlying spots of neutral tint. The eggs were a fairly even pair, both in size, markings, and shape, and were slightly attenuated ovals. . . . I do not consider *Cinclosoma marginatum* a shy bird. As before mentioned, it still frequents country where active mining

CINNAMON GROUND-BIRD.

operations are in progress, and can be seen within easy distance of the main street of Wiluna. All that is necessary is to walk through the bush quietly, keeping one's eyes well ahead. At the first alarm, perhaps, a pair may run under a bush, but if the observer stands motionless the female, followed by the male, soon comes out again, and both will quietly feed right up to one's feet if reasonable quiet is maintained. . . . Probably its southern limit overlaps the northern limit of *C. castanonotum* about the latitude of Menzies or Leonora. How far east it extends is unknown. Westwards I have met with it within 100 miles of the coast, in the latitude of Geraldton; but, despite much search for it on the Pilbarra goldfield, I failed to find it there. No doubt it extends much farther north than Wiluna. I have little doubt that the specimens of *C. castanonotum* recorded as shot near Separation Well (see Campbell's *Nests and Eggs*, p. 256) should have been referred to the present species and not to the latter."

Under the name *Cinclosoma castaneothorax* Le Souëf wrote: "A nest of this bird was found by Mr. Herman Lau on 3rd November, 1879, in the Darling Downs district in Queensland. He flushed the bird from its nest, which was on the ground, but did not secure it. He states that the open nest was loosely built of leaves, twigs, and coarse grass, and situated alongside a fallen log by a tussock of grass, and the bird sat very close. The eggs are slightly glossy and white, freckled with purplish-black and brownish markings, especially on the larger end; the under purple markings are larger than the surface ones, and are also more numerous at the larger end. The eggs measure (a) 1.18×0.92 , (b) 1.14×0.90 inches."

The technical history of this species is somewhat complex and begins with the fact that Gould described two forms as two distinct species, and in this case it was not recognised at an early date that they were only geographical representatives of each other. They were maintained as distinct mostly on account of their rarity and their isolated geographical habitats. When Sharpe wrote up the *Catalogue of the Birds in the British Museum*, forty years ago, he added another new species, basing it on a poor skin which showed slight differences. On the authority of such a writer three species were then accepted, but still very few specimens were known. I received examples which upon comparison proved to be representatives of a very distinct species, but at the same time the relationship of the two later-named species was seen. Upon the preparation of my "Reference List" I relegated Sharpe's species to subspecific rank and introduced a new subspecies:

Cinclosoma castaneothorax nea.

"Differs from *C. castaneothorax marginatum* in its much paler coloration above and below." From Day Dawn, West Australia.

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The names then read :

Cinclosoma castaneothorax castaneothorax Gould.
Queensland.

Cinclosoma castaneothorax marginatum Sharpe.
North-west Australia.

Cinclosoma castaneothorax nea Mathews.
West Australia (Day Dawn).

Cinclosoma cinnamomeum Gould.
South and Central Australia.

Cinclosoma alisteri Mathews.
West Australia.

A little later I introduced the genus name *Samuela* for this series of small desert Ground-Birds, but in my 1913 "List" I inadvertently used the name for *cinnamomeum* alone, leaving the other two with their subspecies under *Cinclosoma*.

I added later :

Samuela cinnamomea samueli,
writing: "Differs from *S. c. cinnamomea* Gould (restricted locality, Finke River, Central Australia) in being paler. Type, Gawler Ranges, South Australia."

Re-examining the specimens available (still few in number) with Ashby's suggestion in mind, I consider that these should be treated as subspecies only, the bird I named *Cinclosoma alisteri* being altogether distinct; the names then being :

Samuela cinnamomea cinnamomea (Gould).
Central Australia.

Samuela cinnamomea castaneothorax (Gould).
Interior of Queensland.

Samuela cinnamomea marginata (Sharpe).
Interior of North-west Australia.

Samuela cinnamomea nea (Mathews).
Interior of West Australia.

Samuela cinnamomea samueli Mathews.
Gawler Ranges, South Australia.



H. Grönvold. del.

Witherby & Co

CINCLOSOMA ALISTERI.
(BLACK-BREADED CINNAMON GROUND-BIRD)

Order PASSERIFORMES.

No. 505.

Family CINCLOSOMATIDÆ.

SAMUELA ALISTERI.

BLACK-BREASTED GROUND-BIRD.

(PLATE 427.)*

CINCLOSOMA ALISTERI Mathews, Bull. Brit. Ornith. Club, Vol. XXVII., p. 16, Nov. 4th, 1910 :
West Australia (Waddilinia, Nullarbor Plains).

Cinclosoma alisteri Mathews, Bull. Brit. Ornith. Club, Vol. XXVII., p. 16, 1910 ; *id.*, Nov.
Zool., Vol. XVIII., p. 330, 1912 ; *id.*, List Birds Austr., p. 198, 1913.

DISTRIBUTION. Nullarbor Plains, West Australia.

Adult male. General colour of the upper-surface rufous-chestnut, including the top of the head, ear-coverts, hind-neck, back, scapulars, upper tail-coverts and central tail-feathers ; upper wing-coverts including the bastard-wing and primary-coverts black tipped with white ; flight-quills pale brown margined on the outer webs with rufous-chestnut, which is much increased in width on the innermost secondaries, margins of the inner webs paler and inclining to buffy-white ; the two central tail-feathers like the back, the next pair blackish towards the tips and slightly tipped with white, the following pair similar but the black and the white at the tip more extensive, and the two outer pairs of feathers for the greater part black broadly tipped with white ; lores, feathers below the eye and ear-coverts black like the throat, fore-neck and breast ; cheeks and a broad line on the sides of the neck white ; lower-breast, abdomen, and under tail-coverts white, with black central lines to some of the feathers, and more or less tinged with pale chestnut ; sides of the body pale chestnut ; axillaries and under wing-coverts white, the greater series of the latter dark brown ; under-surface of flight-quills pale brown tinged with rufous on the margins ; lower aspect of tail black with white tips to the feathers. Eyes brown. Bill black, feet grey. Total length 200 mm. ; culmen 17, wing 83, tail 76, tarsus 27. Figured. Collected at Waddilinia [Nullarbor Plains], West Australia, on the 22nd of September, 1908.

Adult female. Not described.

Immature male. General colour of the upper-surface rufous-chestnut, including the top of the head, back, wings, scapulars, and tail ; inner upper wing-coverts like the outer ones blackish tipped with white, including the bastard-wing and primary-coverts, the greater series margined with rust-brown ; flight-quills dark brown edged with rust-brown, paler and inclining to whitish at the base of some of the outer primaries ; central tail-feathers like the back, the outer ones for the most part black tipped with white ; lores blackish at the base and tipped with white ; a buffy-white line over the eye and along the sides of the crown ; ear-coverts similar to the crown ; cheeks,

* The Plate is lettered *Cinclosoma alisteri*.

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sides of throat, and sides of neck white ; throat, fore-neck and upper-breast black ; sides of body cinnamon ; thighs dusky-brown ; abdomen and under tail-coverts buffy-white with blackish shaft-streaks to some of the feathers ; axillaries and under wing-coverts white, the greater series dusky-brown like the under-surface of the flight-quills ; lower aspect of tail for the most black, white on the apical portion. Eyes brown. Figured. Collected at Waddilinia, West Australia, on the 22nd of September, 1908.

Nest and Eggs. Not described.

Nothing is known regarding the habits of this bird.

GENUS—DRYMODES.

DRYMODES Gould, Proc. Zool. Soc. (Lond.), 1840,
p. 170, July 1841. Type (by monotypy) ... *D. brunneopygia* Gould.

Also spelt—

Drymædus Sundevall, Meth. Nat. Avium Disp. Tent., p. 9, 1872.

Drymos Giebel, Thes. Ornith., Vol. II., p. 60, 1875.

Drymodus Salvadori, Ann. Mus. Gen., Vol. VII., p. 965, 1875.

Drymædus Salvadori, Proc. Zool. Soc. (Lond.), p. 97, 1878.

Hylodes "Gould," Gray, List Genera Birds, 2nd
ed., p. 30, Sept. 1841. Type (by original
designation) "H." *brunneopygia* Gould.
(? Error for *Drymodes*.)

Not—

Hylodes Fitzinger, Neue Classif. Rept., pp. 38, 64, 1826.

MEDIUM "Cinclosomatine" birds with medium bills, rounded wings, very long rounded tail and very long legs and small feet.

The bill is of medium length, compressed laterally, a little basally expanded, the tip a little decurved and notched; the nostrils are linear, placed in a shallow nasal groove, operculate and a few frontal bristles encroach and partly obscure them; there are a few small rictal bristles.

The wing is rounded; the fourth, fifth, sixth and seventh primaries longest and little exceeding the third and eighth which are subequal, the ninth and tenth a little shorter and equalled by the secondaries which exceed the second in length while the first primary is short and only about half the third.

The tail is very long and rounded, composed of twelve broad feathers; the tail-coverts, both upper and under, are comparatively short.

The legs are very long and rather stout, the tarsus booted in front and bilaminate behind; the toes very small and slender, the outer and inner subequal and with the claw less than the middle toe without claw, which is a little longer than those of the other anterior toes; the hind-toe is a little longer than the inner toe but its claw is about twice as long as the claw of the inner toe; all the claws are comparatively small.

DRYMODES BRUNNEOPYGIA.

SCRUB ROBIN.

(PLATE 428.)

DRYMODES BRUNNEOPYGIA Gould, Proc. Zool. Soc. (Lond.), 1840, p. 170, July 1841 : Belts of the Murray, South Australia.

Drymodes brunneopygia* Gould, Proc. Zool. Soc. (Lond.), 1840, p. 170, July 1841 ; *id.*, Birds Austr., pt. VIII. (Vol. III., pl. 10), Sept. 1st, 1842 ; *id.*, Handb. Birds Austr., Vol. I., p. 290, 1865 ; Diggles, Ornith. Austr., pt. VIII., 1866 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 183, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 343, 1883 ; Ramsay, Tab. List Austr. Birds, p. 7, 1888 ; Hall, Key Birds Austr., p. 28, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 261, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 320, 1904 ; Mathews, Handl. Birds Austral., p. 70, 1908 ; Howe, Emu, Vol. VIII., p. 133, 1909 (Vic.) ; Hall, *ib.*, Vol. IX., p. 128, 1910 (Eyre's Peninsula) ; Howe, *ib.*, p. 231 (Vic.) ; Wilson, *ib.*, Vol. XII., p. 33, 1912 (Vic.) ; Chandler, *ib.*, Vol. XIII., p. 38, 1913 (Vic.) ; S. A. White, *ib.*, Vol. XV., p. 160, 1916 (S.A.).

Drymæodus pallidus Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 344, (pref. July 1st) 1883 : Shark's Bay, West Australia ; H. L. White, Emu, Vol. XV., p. 62, 1915 (*re* North's omission).

Drymodes pallidus Hall, Key Birds Austr., p. 28, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 262, 1901 ; Mathews, Handl. Birds Austral., p. 70, 1908.

Drymodes brunneopygia brunneopygia Mathews, Nov. Zool., Vol. XVIII., p. 332, 1912 ; *id.*, List Birds Austr., p. 199, 1913.

Drymodes brunneopygia victoriæ Mathews, Nov. Zool., Vol. XVIII., p. 332, Jan. 31st, 1912 : Kow Plains, Victoria ; *id.*, List Birds Austr., p. 199, 1913.

Drymodes brunneopygia pallida Mathews, Nov. Zool., Vol. XVIII., p. 332, 1912 ; *id.*, List Birds Austr., p. 199, 1913 ; Carter, Ibis, 1921, p. 54.

DISTRIBUTION. The interior districts of Victoria, South Australia, and South-west and mid-West Australia.

Adult male. General colour of the upper-surface mouse-brown including the top of the head, sides of the neck, hind-neck, back scapulars, margins of the innermost secondaries, and upper wing-coverts ; median and greater upper wing-coverts blackish-brown tipped with white ; primary-coverts uniform blackish-brown ; flight-quills

* Also spelt *Drymæodus*, *Drymos*, etc.



H. Gronvold. del.

Witherby & Co

DRYMODES BRUNNEOPYGIA.
(*SCRUB-ROBIN*)

PYCNOPTILUS FLOCCOSUS.
(*PILOT-BIRD*).

SCRUB ROBIN.

dark brown, the fourth, fifth, and sixth marked with white on the outer webs and a white mark at the base of all the quills on the inner webs, which increases in extent towards the innermost secondaries; rump, upper tail-coverts, and fringes to central tail-feathers russet-brown; tail-feathers dark brown inclining to blackish on the outer ones which are tipped with white; a black spot in front of the eye; eyelids, base of lores, and base of the feathers on the fore-part of the cheeks whitish like the chin; throat, breast, and sides of breast pale drab-grey like the axillaries and under wing-coverts becoming fulvous on the abdomen, vent, under tail-coverts, and lower flanks; under-surface of flight-quills hair-brown, with a patch of white across the base like the greater series of the under wing-coverts; lower aspect of tail pale brown, darker towards the apical portion of the outer feathers which are tipped with white. Bill and feet dark greyish-black; eyes dark brown. Total length 230 mm.; culmen 14, wing 96, tail 108, tarsus 40. Figured. Collected at Coonalpyn (90 miles desert), South Australia, on the 17th of May, 1911.

Adult female. Similar to the adult male but smaller.

Immature. General colour of the upper-surface smoke-brown with whitish shaft-lines to the feathers; the feathers on the back are narrowly fringed with black at the tip; upper-wing coverts subterminally white and narrowly edged with brown; bastard-wing blackish margined with white on the outer web; primary-coverts uniform blackish; flight-quills also blackish with whitish or ochreous-brown edging on the outer webs; upper tail-coverts dark chestnut; tail blackish with dark buff tips to the feathers, some of the outer feathers tipped with white; under-surface white with dark brown margins to the feathers; vent white; under tail-coverts buff; under-surface of flight-quills dark brown; lower aspect of tail dark brown with smoke-coloured tips to the feathers. Eyes hazel, feet and legs dark flesh, bill purplish horn. Collected at Broome Hill, South-west Australia, on the 5th of November, 1910.

Nest. "Cup-shaped, somewhat loosely constructed; composed of strips of bark outwardly protected by twigs, and lined inside with grass and a few rootlets; situated in a slight hollow scraped in the ground in thick wattle scrub. Dimensions over all 7 to 8 inches; egg cavity 3 inches across by 2 inches deep." (A. J. Campbell.)

Eggs. Clutch, one. Ground-colour greenish-grey, spotted and blotched with brown, sometimes forming a zone at the larger end. 25 mm. by 19.

Breeding-season. September to November or January.

THE many strange forms which accrued to Gould as the result of his adventurous policy of investigating the Australian avifauna personally were fortunately mostly separated as distinct generic types. His personal knowledge enabled him to override the stay-at-home opposition and his genera have been continually accepted until the present day with little discussion. In the present case he proposed the genus name *Hylodes* at the meeting of the Zoological Society and then altered it to *Drymodes*, and the latter name was published by Gould without any indication of alteration.

Gould's notes read: "I discovered this singular bird in the great Murray scrub, where it was tolerably abundant; I have never seen it from any other part of the country, and it is doubtless confined to such portions of Australia as are clothed with a similar character of vegetation. It is a quiet and inactive species, resorting much to the ground, over which and among the underwood

THE BIRDS OF AUSTRALIA.

it passes with great ease ; it appeared rarely to take wing, but to depend for security upon its dexterity in hopping away to the more scrubby parts. I have occasionally observed it mount to the most elevated part of a low bush, and there pour forth a sharp monotonous whistling note, not very unlike some of the *Pachycephalinae* ; indeed, it was its note that first attracted my attention to it. When on the ground, and occasionally when perched on a twig, it elevates its tail considerably, but not to the extent of the *Maluri*. The sexes are alike in colouring, but the female is much smaller than her mate ; the young resemble the immature *Petroicæ* in the character of their plumage."

Captain S. A. White's account is as follows : "This bird has a fairly wide range and frequents the low broom scrub as a rule, although it is often found in the mallee. It is found almost at the most northerly end of the Flinders Range right down to the coast, being very numerous in the broom scrub on Eyre's Peninsula. It is a shy bird and keeps well to cover and spends most of its time upon the ground. Although its note is soft and musical it is far reaching ; the nest is generally built in a dead bough on the ground or close to a stump, and being composed of dry bark they are difficult to pick out. Nesting-season, September to November."

Mr. Tom Carter has written me the following note : "The Scrub Robin occurs in the vast areas of Marlock (Ma-a-lock) scrub extending to the east of Broome Hill, and southern part of the Great Southern Railway. It cannot be called common, but its quiet habits of feeding about on the ground and occasionally in low scrubs, cause its presence to be easily overlooked. The nest is built on the ground, and not always in scrub, as a nest was found, July 14th, 1910, in a fairly open piece of ground in a growth of silver grass ; one egg was in the nest and a single egg appears to be a 'clutch.' On November 6th, 1910, two nests were found, each containing an almost full-grown nestling. The female birds showed the greatest anxiety for the young, and came so close that one of them was killed by my companion (a 'bush boy') striking it with a stick he held in his hand. These birds are very active in their movements on the ground (as might be inferred from their long legs). They are inquisitive in their manner, and will come close up to anyone keeping still in the dense Marlock scrub."

Mr. Edwin Ashby's notes read : "I have never seen this bird outside of the Mallee country. It is now getting rare in the mallee to the west side of the River Murray, but at Karunda, between the Murray and the Victoria border, it is very common. Soon after sunrise the cock birds can be heard calling and answering one another in the thick scrub, especially where there are large patches of round ti-tree bushes (*Melaleuca ericifolia*) : these bushes grow mostly in the small flats between the sandy rises. On September 10th, 1919, I visited an

SCRUB ROBIN.

almost untouched belt of mallee near Woodchester, South Australia, just under forty miles from Adelaide, and there we found this bird fairly numerous; the low double call of the cock first called our attention to their presence, the call is strangely soft and low and yet penetrating. We shot the hen first, which extruded an egg, showing that nesting had commenced. A little later in the season the more common note is a shrill warning whistle repeated twice, very similar to the warning note of *Poodytes gramineus*. I found the Scrub Robin common at Venus Bay in the Great Bight towards the West Australian border in February 1910. The birds there were a little paler and more rufous in plumage than the more eastern birds."

Mr. L. G. Chandler has forwarded me the following interesting account: "In the Kow Plains district (Victoria), in the spring of 1912, I found that the Scrub Robin was a fairly common bird, and from constant observation I was able to gather some interesting field notes. The favourite haunt of the bird is in the 'whipstick' mallee, where the turpentine bush flourishes and silver mulga, *Melaleuca* sp., etc., abound. This is one of the few mallee forms which shows little fear of man, as by imitating the call-notes one can decoy a bird to within a few feet of oneself. The principal calls resemble 'Chip-pip-er-ee,' 'Chip-pip-ee' and 'Chip-peer-a-peat.' These notes are varied and are sometimes uttered in a low key; the effect being ventriloquial, while another note, used largely as a call-note, is a long drawn out whistle; and a note of alarm and distrust which sounds phonetically: 'Charr-rrr-tuk-ertuk-ertuk-ertuk,' the 'tukertuk' portion being produced rapidly. The Scrub Robin is one of the last birds to begin calling in the morning; the male will mount a favourite perch—in every case an exposed limb well above the scrub, often a dead Murray pine or acacia—and repeat its calls with slight variations for some time. Presently he gives the drawn-out sound several times as a signal for the female to join him; then, still uttering this call flies to the ground. Often the female does not appear until her mate has secured something edible, when an extra appeal on his part brings her from the nest or nesting site, answering softly as she approaches 'Coo-yer, coo-yer.' At times this drawn-out note is also used as a warning to the female. Both birds will now work the ground together, the male emitting at intervals some of the calls previously mentioned, and frequently feeding his mate. By following quickly and as silently as possible, one has the opportunity to follow the female to her nest. She is slightly smaller than her mate, but it takes several days of close observation to fix the difference in one's mind when the birds are separated. In from ten to twenty minutes the birds begin to feed back to the starting point, and it is at this stage that the male bird proves himself a pastmaster in the art of decoying. Leaving his mate in a sheltered position, he suddenly flies across an open space for a distance,

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perhaps of twenty yards, uttering the scolding notes of distrust and doing everything possible to make one follow him. The female, in the meantime, slips unnoticed to her nest by a series of short, low flights. However, should one follow the hen bird, the male is soon on one's tracks, and if care be not exercised, will usually succeed in defeating one's object, especially should the undergrowth be dense. With great difficulty I followed a female bird one day for fully twenty-five minutes when she ran behind a 'turpentine bush' and the male bird appeared on the other side about three seconds later. I thought at the time he was forty or fifty yards away at my back, and the female had vanished. Curiously enough, following this clever performance, the male after mounting to a lower limb of a pine tree and calling "Chip-pip-ee" several times, flew straight to where the hen had concealed herself. The female utters many of the male bird's notes, but in a subdued tone. I heard her call as he flew, and was soon on the spot and after a few minutes' careful watch I traced her to the building nest. Both sexes assist in constructing the nest; a shallow hole is first made in the ground, possibly by the bird turning round; short, thick sticks are next placed in position around this hole, and finally bark and then a lining of rootlets or fine twigs complete the nest. Many nests are built against the fallen branch of a tree or bush, and in this case the outer edge of sticks is built on three sides only. Although as above mentioned, this species appears to exhibit little fear of man, the birds resent anyone watching them building the nest. Two nests which I found building were deserted, presumably on account of my remaining too long in the vicinity. By systematic search I was fortunate enough to find the new nests of both pairs of birds. I visited one nest which was nearly completed when I first saw it, five days later. I found it deserted and spent some time searching for the second nest but did not find it, but next day discovered it with one fresh egg. The female will allow one to approach to within a few feet before she starts from the nest, and it is a certain sign that a nest is not far away should a female be noticed regarding one intently without moving for several minutes. Unlike her mate she does not practise to any extent the art of decoying. The birds make little demonstration while an intruder is at the nest, and the female will approach to within a few feet and look inquiringly into one's face. When first disturbed she may utter a few scolding notes, but after that remains silent, and should the stranger retire a few paces she goes to the nest fearlessly. Usually several old nests were found in the area frequented by a single pair of birds, proving that the Robin is very local in its habits. The Scrub Robin moves over the ground in a succession of runs and hops, and has a curious habit of flicking the wings and tail at times, much like a *Petroica*. The bird when feeding reminds one of the Ground-Thrush with the same quick action in tossing the earth aside

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with the bill after a grub, and jumping back with apparent nervousness before renewing the attack ; on one occasion I saw a bird fly about two feet into the air and capture a passing insect, but grubs are the chief item of diet. When perched, this species glances at the ground, with its head first on one side and *vice versa*, as though watching an insect, while its tail is often raised and lowered with a slow motion. One nest was found containing a newly-hatched chick, which was naked, with skin of a dark brown colour, gape cream. I believe that stump-tailed lizards (*Trachysaurus rugosus*) are responsible for the disappearance of many eggs and young of these ground-frequenting birds, and these lizards are in hundreds in this district. I found nests, both with eggs and young, which upon later visits proved to have been despoiled, and I concluded that they had been raided by these reptiles."

Mr. A. H. E. Mattingley has also written : " This long-legged, dull brown bird, with its characteristic spots around the eye, is the largest of the Robins frequenting the ' mallee,' which arid region is its principal habitat. It frequents the ' mallee ' scrub, and is local in its habits, always met with in pairs, and does not wander far from one vicinity. Its food consists of insects which it finds by searching in the debris under dead leaves and other rubbish, such as bark. In rambling through the scrub one would often pass it by, were it not for the shrill whistling note with which it resents intrusion to its abode. The note has the timbre of that of the Thickhead family. It is a very active bird, and can rapidly proceed through the ' mallee ' scrub, which it does by hopping and running, and rarely leaves the ground. As a ground-frequenting bird it has all the characteristic style of Australian scrub birds of small size that proceed by a succession of hops interspersed by short runs and which carry their tails in an erect posture at an angle of about 80°. If the nest is found before the bird lays in it, and the bird sees you gazing into it, the bird will desert it, but if there be eggs in it no desertion will take place. When the hen bird is sitting, the male bird at the first sound of intrusion comes to meet you and with a pleasing shrill whistling note keeps just a few yards ahead ; when he has decoyed you a hundred yards or so from his nest he mysteriously disappears and you next hear the note some distance away. The hen sits very close and will not leave the nest until you are within a few feet of it. Should the young be taken out of the nest and held in the hand, the cock bird sometimes flies down alongside with all his feathers ruffled out, and begins to peck one's fingers to release his progeny. It is a very lively and inquisitive bird, and my friend, Mr. Chas. McLennan, has bestowed the vernacular name of the ' Trappers' Companion ' upon it, since it is generally the first bird to herald his approach when on his daily round of setting dingo traps. Many a time have these birds approached within a foot or two when he was setting

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his traps. They usually peeped round a low bush and all the time uttered a pleasing note as they seemed bent upon finding out what he was doing. The young birds, when born, are naked and of a deep chocolate-black colour; when older, they are easily disturbed and flutter out of their nest (the top of which is usually level with the surface of the ground) and make their way through the scrub aided by their parents which keep up an agitated chuckling note encouraging their offspring in its efforts to escape. When tired, the young bird plants or hides itself, and its brown mottled plumage harmonises wonderfully with its surroundings and render it almost invisible. When the young one hides, the parents try to inveigle its pursuers away and go circling around through the scrub. After a time the young one calls for its parents and these indicate its hiding place."

Mr. F. E. Howe writes: "This interesting creature is also very numerous all through the mallee scrubs, especially where the low growing black wattle abounds, and being a terrestrial form is always found searching among the dead leaves and debris for insects which form its food. It is stationary in its habits and will be found in the same locality as long as not interfered with. It has three distinct notes: one, the usual call, is a high pitched note, being softly uttered at first, gradually getting louder and then dying away, but is distinctly only one note. The alarm-note, or that generally heard when there is young about, sounds like "Chair-r-r-r," and is rather harsh in sound. When uttering these calls the tail appears to be dropped along the ground and the feathers on the head slightly raised. A third call is a loud and sharp double note, and it appears to be used when answering one another. Both birds utter these three notes. They have a curious habit of slightly elevating the tail, often at the termination of a call. Once or twice we noticed them perch high up on a dead stick to take observations while we were about; just before dusk I observed them flying into the air above the short mallee and catching moths and other insects, at which they appeared to be adept. We always found it easy to find the nest or locate the young by watching the actions of the female, which is smaller than the male; the latter always tried to decoy us away by fluttering in front, uttering its soft, sweet note, and coming back if you did not at once follow him."

Mr. J. W. Mellor has also written: "The Scrub Robin is found fairly well over the mallee country in South Australia, and I have seen it on Eyre's Peninsula. It is a rather shy bird, but by keeping still in the thick mallee scrub and repeating its plaintive whistle, the bird will come very near; it is ever on the move, hopping over the ground with jerky actions like that of the common European Blackbird; its tail sometimes erect, sometimes straight out behind, and ever moving as it hops through the thick undergrowth."

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F. E. Wilson, writing about Oologists in the Mallee, recorded: "One of the objects of our trip was to obtain eggs of this scarce species and we were fortunate in taking two clutches. Sometimes we found these birds in the open mallee timber, and at other times in dense thickets of acacia and turpentine bush. We usually found that each pair was isolated from its nearest neighbours, and always had to approach with great caution to observe them. When, however, the nest was approached they would run all around us, but always took good care to keep away from their nests. They were very local, and sometimes we found three or four of the previous season's nests within short range of the new one. The nest was usually placed upon the ground at the base of a tree, or near a fallen log, but occasionally it was found built several inches off the ground on a heap of debris. One old nest seen was built on the top of the trunk of a fallen Murray pine. The nest is easily distinguished from that of other ground birds by the thick twigs arranged around the outside. The interiors of the nests examined were lined with fine twigs and rootlets, upon which the single egg was laid. The principal note used, which is generally uttered when the bird is perched on some dead twig close to the ground, may be represented as 'Chū-chuě,' the second syllable being the louder. They feed mostly on the ground, and are able to run very swiftly when disturbed."

Mr. Tom Carter has written: "Pale Scrub Robins occur in the scrub country at Broome Hill, and also a long way east of it (Mathews, 'Reference List' 1913, only gives mid-West Australia as its range in that State). A male bird in full moult was obtained at Gnowangerup on 13th February, 1919, the only one seen in the course of my trips. It is a very shy species, and easily overlooked."

When Sharpe prepared the volume in the *Catalogue of the Birds in the British Museum* dealing with these forms he separated a specimen from Shark's Bay as a distinct species, *Drymæodus pallidus*, on account of its pale coloration.

In my "Reference List" I separated the New South Wales and Victorian specimens under the name:

Drymodes brunneopygia victoriæ.

"Differs from *D. b. brunneopygia* in being paler below and in having the rump much less rufous," the type being from Kow Plains, Victoria.

This was continued in the 1913 "List," but wrongly, as the typical bird came from the Belts of the Murray and this form is the same as that from the Kow Plains.

As Ashby has pointed out, it is the western South Australian form which requires the new name, being paler and more rufous.

Consequently we may still admit three subspecies, but there may be more.

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Drymodes brunneopygia brunneopygia Gould.

Mallee belt of Murray, South Australia
and Victoria ; New South Wales ?

Of this *D. b. victoriae* Mathews, given to the Victorian form, may be cited
as synonymous.

Drymodes brunneopygia intermedia nov. subsp.

South Australia (western).

as above described, being paler and more rufous than the typical form.

Drymodes brunneopygia pallida Sharpe.

West Australia.



H. Grönvold. del.

Witherby & Co

DRYMODES SUPERCILIARIS.
(NORTHERN SCRUB-ROBIN).

Order PASSERIFORMES.

No. 507.

Family CINCLOSOMATIDÆ.

DRYMODES SUPERCILIARIS.

NORTHERN SCRUB ROBIN.

(PLATE 429.)

DRYMODES SUPERCILIARIS Gould, in Jardine's Contr. Ornith., 1850, p. 105 : Cape York, Queensland.

Drymodes superciliaris Gould, in Jardine's Contr. Ornith., 1850, p. 105 ; *id.*, Proc. Zool. Soc. (Lond.), 1850, p. 200, 1851 ; *id.*, Birds Austr. Suppl., pl. 16 (pt. 1.), March 15th, 1851 ; *id.*, Handb. Birds Austr., Vol. I., p. 291, 1865 ; Diggles, Ornith. Austr., pt. VIII., 1866 ; Ramsay, Proc. Linn. Soc., N.S.W., Vol. I., p. 52, 1876 ; *id.*, *ib.*, Vol. II., p. 183, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 344, 1883 ; Ramsay, Tab. List Austr. Birds, p. 7, 1888 ; Hall, Key Birds Austr., p. 28, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 262, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 322, 1904 ; Mathews, Handl. Birds Austral., p. 70, 1908 ; *id.*, Nov. Zool., Vol. XVIII., p. 332, 1912 ; *id.*, List Birds Austr., p. 199, 1913 ; Macgillivray, Emu, Vol. XIII., p. 170, 1914 (N.Q.) ; *id.*, *ib.*, Vol. XVII., p. 201, 1918 (N.Q.).

Drymodes superciliaris colcloughi Mathews, Austral Av. Rec., Vol. II., pt. 5, Sept. 24th, p. 97, 1914 : Roper River, Northern Territory.

DISTRIBUTION. North Queensland. Eastern Northern Territory.

Adult male. General colour of the upper-surface rust-brown, including the top of the head, hind-neck, entire back, scapulars, and central tail-feathers ; upper tail-coverts chestnut ; lesser upper wing-coverts drab-brown, marginal coverts, bastard-wing, median, and greater wing-coverts black tipped with white ; primary-coverts black, white at the base on the inner webs ; flight-quills blackish-brown edged with white or drab on the outer webs and a patch of white at the base of the inner webs ; outer tail-feathers blackish more or less fringed with chestnut towards the base and tipped with white, the outermost feather on each side narrowly edged with white along the outer web ; lores white ; a black spot above the eye and a black patch below the eye ; an eyebrow above the eye and ear-coverts buffy-white ; chin and throat pure white ; breast drab-grey ; middle of abdomen white ; thighs greyish-white ; sides of body fawn colour ; under tail-coverts very pale fawn colour ; axillaries and under wing-coverts white with brown bases to some of the feathers and a brown patch on the margin of the wing ; under-surface of flight-quills dark brown, white at the base and along the margins ; lower aspect of tail blackish

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with white tips to the feathers. Bill and eyes black; feet lavender. Total length 235 mm.; culmen 15, wing 110, tail 106, tarsus 43. Figured. Collected at Cape York, North Queensland, on the 6th of September, 1913.

Adult female. Similar to the adult male.

Male. General colour of the upper-surface chestnut-brown including the top of the head, hind-neck, back, scapulars and central tail-feathers, brighter and more chestnut on the rump and upper tail-coverts; lesser upper wing-coverts drab-brown like the margins of the innermost secondaries; median and greater upper wing-coverts, bastard-wing and primary-coverts black tipped with white, or buffy-white, the primary-coverts marked with white at the base on the inner web; flight-quills blackish-brown marked with white on the inner webs towards the base and edged with buffy-white on the outer web; outer tail-feathers for the most part blackish-brown with buffy-white tips; lores buff; feathers behind the eye and ear-coverts buffy-white; fore-part of eye and feathers below the eye and the lower sides of the ear-coverts black; chin and throat buff; breast, abdomen, sides of body, thighs and under tail-coverts smoke-brown; axillaries and under wing-coverts white with more or less brown on the marginal coverts; under-surface of flight-quills dark brown with white margins at the base; lower aspect of tail dark brown with buffy-white tips to the feathers. Total length 222 mm.; culmen 12, wing 117, tail 97, tarsus 42. Figured. Collected on the Roper River, Northern Territory, in September 1910, and is the type of *Drymodes superciliaris colcloughi*.

Immature. Crown of head, hind-neck and sides of the neck pale smoke-brown with pale shaft-streaks and some of the feathers on the top of the head have narrow black edges; back ochreous with pale centres and blackish fringes to some of the feathers; lesser upper wing-coverts buff with a dark spot on each web of the feathers; median and greater series black with cream-coloured shafts and tips to the feathers; bastard-wing also black tipped with white; primary-coverts black marked with white on the basal portion of the inner webs and minutely marked with buff at the tips; flight-quills blackish-brown with white at the base and along the edges of the outer webs of some of the primaries and inclining to ochreous on the outer webs of the secondaries; upper tail-coverts rufous-chestnut; middle tail-feathers rufous-brown with smoke-white tips to some of the feathers; lateral feathers blackish tipped with white; eyelid in front of eye black as is also a narrow line below the eye skirting the lower margin of the ear-coverts; hinder eyelid, a spot above the eye, and ear-coverts buffy-white; throat, abdomen and sides of body silky-white; fore-neck buffy-white with dark edges to the feathers; under tail-coverts buff; lower flanks tinged with buff; under wing-coverts white, the marginal ones buff; under-surface of flight-quills dark, white at the base and pale at the tips; lower aspect to tail blackish-brown with white tips to the feathers. Eyes black, bill brown, lower mandible pink, feet pink. Collected at the Cable Station, Cape York, North Queensland, on the 26th of February, 1913.

Nest. "Which is generally placed at the foot of a small tree, consists of a circular hole scooped in the ground, about four inches in diameter and one and a half deep, and this is roughly lined with the long wiry tendrils of a scrub plant. Around this cupped portion of the structure is built a compact wall, about an inch or more in height, of sticks and leaves. . . . The structure measures externally over all about 9 inches." (Jardine.)

Eggs. "Clutch, two. Ground-colour dull white or stone-grey uniformly freckled and spotted with different shades of brown and underlying freckles and spots of faint bluish-grey. 22 mm. by 18." (North.)

Breeding-season. November to January. (Jardine.)

NORTHERN SCRUB ROBIN.

GOULD again was fortunate in receiving such assistance from such enthusiastic naturalists as is seen in the following item: "Perhaps one of the most interesting birds discovered by me in the brushes of South Australia was a species of this form, to which I gave the name of *Drymodes brunneopygia*; this second species of the genus is an inhabitant of the north-east coast; and it will be seen by the following notes by Mr. Macgillivray that the two birds, as might be supposed, accord as nearly in their habits as they are allied in structure. 'While traversing on the 17th of November, 1849, a thin open scrub of small saplings growing in a stony ground thickly covered with dead leaves, about five or six miles inland from Cape York, I observed a nest placed on the earth at the foot of a small tree; its internal diameter was four inches and a half; it was outwardly composed of small sticks, with finer ones inside, and lined with grass-like fibres, and was moreover surrounded with dead leaves heaped up to a level with its upper surface; it contained two eggs an inch long by seven-tenths of an inch broad, of a regular oval shape, and of a very light stone-grey, thickly covered with small umber blotches, which increased in size and were more thickly placed at the larger end; they were placed side by side, with the large end of one opposite the small end of the other. After watching near the nest for some time, one of the owners appeared, and was procured; but putrefaction having commenced before my return to the ship, I could not ascertain the sex with certainty; it approached me within three or four yards, hopping with sudden jerks over the leaves, and moving by fits and starts like the Robin of Europe; it uttered no cry or note during the time I was watching its motions. Two others were afterwards procured in the same kind of open scrub, and the birds, being probably in the immediate neighbourhood of their nest, hopped up quite close to the observer.'"

Sixty odd years later another Macgillivray wrote: "Fairly numerous in the scrub at Cape York, where its note, a long drawn out whistle, may often be heard in the breeding-season. It finds its living on the ground, where it hops about quietly, turning over leaves and other debris in search of hidden insect life. When they are nesting the male will at once put in an appearance when its call is imitated, and becomes very excited. The female does all the nest building and alone engages in the task of incubating the eggs. 22nd December, 1910: Watched a pair of Scrub Robins for some time engaged in building a nest; it was about half built. The female selects a leaf and then hops along to the nest. Male follows her about, but does not do any work. It is a difficult job watching these birds, as one cannot see far through the undergrowth, and you have to get down on your hands and knees and crawl about after them. Dec. 28, 1910: Went out to Scrub Robin's nest previously noted building. It came on to rain heavily after I had got some distance

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from the camp, and made things pretty miserable. The nest contained two eggs. It was built in the side of a small hollow in the ground, composed outwardly of a thick wall of twigs, some of which were $\frac{3}{8}$ inch thick and from 3 to 8 inches in length, and lined with dead leaves and fine fibres. Egg chamber $3\frac{1}{2}$ inches deep and 3 inches in diameter. Whole nest was 9 inches across and $4\frac{1}{2}$ inches high on one side and 3 inches on the other (McLennan). Male, iris brown, bill black, legs fleshy-straw colour. Stomach contents, beetles."

There has been little written about this species, but it is one of the interesting forms which suggest the relationship of various birds. While it has generally been ranked as congeneric with *Drymodes brunneopygia* it may prove distinct. The facts are very similar to the case of *Cinclosoma*, as *D. brunneopygia* occurs in the south of Australia from east to west, but not in Tasmania. The present species only occurs in North Australia, and was supposed to be confined to North Queensland until recent investigations found it in the Northern Territory whence I described

Drymodes superciliaris colcloughi.

"Differs from *D. s. superciliaris* in being much redder on the back and entirely reddish-buff on the under-surface. Roper River, Northern Territory."

Superficially this bird is closely related to *Cinclosoma* s. str., only differing in the longer legs, so that it appears to be a bush-loving form developed from a similar source. It is represented in New Guinea by a distinct species *D. beccarii* Salvadori, which at first sight seems only subspecifically different, being browner above, but closer examination reveals the fact that the wing is shorter, more rounded, with broader primaries, and may be allowed specific rank. This species has a subspecies on the Aru Islands, which is obviously darker above, especially on the tail, and may be called

Drymodes beccarii adjacens subsp. nov.

Such a distribution suggests the distinct evolution of *D. superciliaris*, and that it is another case of parallelism from a similar source again.

GENUS—PYCNOPTILUS.

PYCNOPTILUS Gould, Proc. Zool. Soc. (Lond.), 1850, p. 95,

March 14th, 1851. Type (by monotypy) *P. floccosus* Gould.

SMALL "Cinclosomatine?" birds with short bill, short rounded wings, long rounded tail and long slender legs with small feet.

The bill is about half the length of the head, laterally compressed, a little expanded basally, the tip a little decurved and obsoletely notched; the nasal groove is less than half the length of the bill, the nostrils appearing as linear slits, operculate, nasal feathering almost obscuring them; the rictal bristles small but noticeable; the under mandible weak and the rami short and little divergent, the interramal space small and feathered.

The wing very rounded, the first feather about half the length of the third, the second midway between first and third, the fourth a little longer than the third and rest, fourth to tenth, subequal, the secondaries scarcely shorter and longer than the third primary.

The tail is long and rounded, the feathers broad, the tail-coverts short.

The legs are long and slender, booted in front and bilaminate behind; the toes are slender, the middle toe longest, without claw, longer than inner toe with claw which is same length as outer, the claws being very short; the hind-toe is about equal to the inner, but its claw is twice as long as the claw of the inner but still short; all the toes are small.

As suggested by the hereafter quoted field naturalists, probably a close relation is *Hylacola*, and both are nearly related to *Sericornis* or even more nearly to *Calamanthus*.

Order PASSERIFORMES.

No. 508.

Family CINCLOSOMATIDÆ.

PYCNOPTILUS FLOCCOSUS.

PILOT BIRD.

(PLATE 428.)

PYCNOPTILUS FLOCCOSUS Gould, Proc. Zool. Soc. (Lond.), 1850, p. 95, March 14th, 1851 : interior of New South Wales (Blue Mountains).

Pycnoptilus floccosus Gould, Proc. Zool. Soc. (Lond.), 1850, p. 95, 1851; *id.*, *ib.*, p. 279, after Jan. 1852 : New South Wales; *id.*, Birds Austr. Suppl., pl. 27 (pt. 1.), March 15th, 1851; *id.*, Handb. Birds Austr., Vol. I., p. 348, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 342, 1883; Ramsay, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. I., p. 1139, pl. xx., 1887; *id.*, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 28, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 258, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 309, 1904; A. G. Campbell, Emu, Vol. VI., p. 130, 1907; F. E. Howe, *ib.*, p. 183; Mathews, Handl. Birds Austral., p. 69, 1908; Howe, Emu, Vol. IX., p. 41, 1909; *id.*, *ib.*, Vol. XIV., p. 192, pls. xx-xxii., 1915 (complete monograph); Lawrence and Littlejohns, *ib.*, Vol. XVI., p. 191, pl. XLIII., 1917.

Pycnoptilus floccosus floccosus Mathews, Nov. Zool., Vol. XVIII., p. 331, 1912; *id.*, List Birds Austr., p. 198, 1913.

Pycnoptilus floccosus sandlandi, Mathews, Nov. Zool., Vol. XVIII., p. 331, Jan. 31st, 1912 : Sassafras, Victoria; *id.*, List Birds Austr., p. 199, 1913.

DISTRIBUTION. New South Wales; Victoria.

Adult female. General colour of the upper-surface dark chocolate-brown including the top of the head, ear-coverts, sides of neck, hind-neck, back, scapulars, wings and tail; inner webs of flight-quills blackish; base of fore-head, lores, eyelids, fore-part of face, chin, and throat fulvous; breast also fulvous with dark margins to the feathers which imparts a scalloped appearance; sides of abdomen similar but duller; middle of abdomen greyish-white; sides of body dark smoke-brown like the thighs; under tail-coverts chestnut; axillaries rust colour; under-surface of flight-quills dark brown; lower aspect of tail pale chocolate-brown. Eyes salmon-pink; feet dark brown; bill horn. Total length 165 mm.; culmen 13, wing 69, tail 69, tarsus 32. Figured. Collected at Selby, Victoria, on the 8th of April, 1912.

Adult male. Similar to the adult female.

Immature male. General colour of the upper-surface, including the top of the head, back, wings, and tail dark smoke-brown; sides of the face similar to the top of the head but rather paler; throat, breast and sides of the breast pale smoke-brown; middle of the abdomen whitish; lower flanks, and under tail-coverts chestnut; thighs

PILOT BIRD.

dusky ; eyes black ; feet and bill light horn ; gape yellowish. Collected in Ferntree Gully, Victoria, on the 6th of November, 1910.

Nest. Large dome shaped with side entrance. Composed of bark, leaves, tree-fern, and grass woven together, and lined with feathers. Outside dimensions 6 inches by 5 deep ; entrance $1\frac{1}{2}$.

Eggs. Clutch, two. Ground-colour brownish, darker at the larger end, where a zone is formed. 20 mm. by 19.

Breeding-season. August to February.

GOULD described this new species and genus twice over, apparently so impressed with its strangeness, but admitted: "Although I do not doubt that it is really an inhabitant of Australia, I have no positive evidence on this point. I know nothing of the habits and economy of this bird, nor what part of Australia it inhabits. I purchased it of Mr. Warwick, who had obtained it in a small collection of birds said to have been formed in the interior of New South Wales towards the River Murrumbidgee."

Mr. F. E. Howe has made a complete study of their habits, and has sent me from time to time full notes concerning his investigations, but he has recently published a corrected account of his results, so I have concluded it best to transcribe that account rather than publish his MS. notes I have in hand.

"I first met the Pilot Bird at Ferntree Gully, in the Dandenong Ranges, Victoria, on 18th November, 1906. My friend, Mr. J. A. Ross, had been fortunate enough to find a nest containing two eggs on the previous day. We decided to have a good look for the birds. I might here say that for the past eight years we have spent many week-ends studying the nesting economy of Pilot Birds, and have made many interesting observations. Why the species is called Pilot Bird I have not been able to ascertain, although I have made exhaustive inquiry. One observer says that, as the pilot fish is always found in the company of a shark, so the *Pycnoptilus* is always to be found where there are Lyre Birds (*Menura*). Certain it is that, wherever I met the Pilot Bird, the Lyre Bird, though seldom seen, was always to be heard. The Pilot Bird is terrestrial in habit, and only on one or two occasions have we observed it at any height from the ground. When we were examining a nest once the birds came, and, flying and climbing into an acacia, reached a height of perhaps 12 feet. Sometimes I have seen them fly from the ground 5 or 6 feet into the air after moths. The *Pycnoptilus* is found only in the dense and humid scrubs of secluded gullies, particularly country covered with huge sword grass (*Lepidosperma*) and wire grasses (*Ehrharta*). It is also partial to large tracts of hop (*Goodenia ovata*) and bracken fern, but these scrubs must be covered with a larger and taller growth of eucalyptus, or hazel and musk. The bird

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has greatly developed its legs at the expense of the wings. Its food is almost entirely obtained on the ground, and it covers much country in search of it. Moreover the bird will fly only when forced to, as, for instance, when crossing a track or open part in the scrub, or if alarmed, and even then it flies only a short distance, trusting rather to its legs for safety. Its dexterity in getting through the scrub is marvellous, and it often goes at such a pace that it resembles a small-sized rat more than a bird. In its nidification, habits, and plumage the Pilot Bird perhaps resembles *Hylacola pyrrhopygia* more than any other form, and is closely allied to the Scrub Wren, *Sericornis frontalis*, but is considerably larger. The Pilot Bird is insectivorous, but occasionally varies its food. The contents of the stomachs of a few birds were examined by Mr. T. H. Tregellas. He tells me that in the majority of cases they were crammed with minute mussels, taken from banks of watercourses, and the bodies of small green beetles. The birds are also fond of the fruit of *Bursaria spinosa*. Often I have seen them devour worms, and a pretty sight it was to see a bird perch on my companion's foot and take mosquitoes. Often when eating lunch we have fed Pilot Birds with breadcrumbs, and on one occasion a bird allowed a serviette to be shaken over it without showing any sign of fear. When in quest of food these birds have a strange habit of 'flicking' the tail with a smart up-and-down motion, and often use their feet to turn over bark and leaves. Their actions generally are very dainty. The song is sweet and varied. There are at least half a dozen different calls, the female generally joining in at the latter end of the song with notes entirely different from those of the male, just as the female of the Coachwhip Bird, *Psophodes crepitans*, does. One note, sounding like 'Tui-wit' softly uttered, is often heard when the nest is building, and is used by both birds. The description of a call given by A. J. Campbell as 'Guinea-a-week,' is easily recognised, and is generally given by the female in answer to a longer and more beautiful song, and appears to be used when the birds are moving rapidly through the scrub. When the female is sitting the male uses the 'Guinea-a-week' call, and she answers from the nest, 'Whit-a-whit-ee.' Should the female come off the nest without being called, the song then is either 'Guinea-a-week-tui,' 'Guinea-a-week-tui,' or 'Whit-a-whit-ee-tou,' 'Whit-a-whit-ee-tou,' the last syllable being uttered by the male in both cases. Often the male will fly on to a fallen dead tree and give voice; then the head is thrown rearward, so much so that it appears to be resting on the back, and the little throat can be seen working even when the observer is at a fair distance."

Mr. Tom Tregellas's notes read: "Both this and the Coachwhip Bird use a note or two that has a striking resemblance. When the male of both

PILOT BIRD.

kinds is feeding in close proximity to the female, though not quite in touch with her, a low whistling note as of encouragement or endearment is very often uttered. It is not a loud note but low and sweet, just discernible to the human ear, though loud enough no doubt for its purpose. The call 'Guinea-a-week' is a misnomer. There are only three syllables in the call, which is much more like 'Eat-tu-wēēt' with the accent on the last syllable with a rising inflexion. Even this call has variations, as I found lately when spending hours in the solitude of their retreats making a special study of them. If I called in the same manner I would get replies for a while, and then the bird from its gloomy fastness would change the accent to the first note, evidently mistrusting the answering call. Being still dissatisfied with the result he would change again, and at times called so much like the shrill whistle of the Coachwhip as to elicit a reply from that beautiful bird. The note of the female Pilot Bird is a very distinctive one. When I first heard it I knew not whence it came, as it seemed just as much in the tree tops as the underwood. The nearest approach to it I get by pursing up the lips as if in saying 'Oh,' and then giving one sudden blast of wind, making a sound like that produced by blowing in a door knob. This sound must not be prolonged longer than a second at the most, and the quicker it is cut off the better the result. There is nothing like meeting the bird at home and carefully practising the notes in company with the bird itself to obtain proficiency, be it the Coachwhip, Pilot, or any other bird, and I always go alone when in quest of such information, as anyone else only interferes with success. When the male Pilot Bird calls, the female does not *invariably* answer, as is generally the rule with the Coachwhip, and sometimes he calls several times before receiving a reply. Not so when *she* calls. No matter where he is, he immediately makes some sort of reply, as if he thinks it his bounden duty so to do. Very often his reply is beautifully soft and sweet, and seems the concentrated essence of love itself."

Mr. Edwin Ashby has written me: "*P. f. floccosus*.—I found this bird in the deep gullies around Woodford in the Blue Mountains in New South Wales on the occasion of a brief visit on the 12th June, 1915. I was successful in shooting a pair during this visit, but on each occasion I only got a glimpse of the bird running amongst the stems of the bracken fern. Only once did I hear its characteristic call, so it is fairly certain that at that date the pairing season had not commenced. *P. f. sandlandi*.—I spent a week at Mount Dandenong, Victoria, in October 1914, and secured several skins. The birds had then paired and, I judged, were then nest building. I had many opportunities of watching their quick movements as they searched

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for insects under the thick bush, running sometimes rapidly over fallen logs. They are quiet birds, except for the loud musical call of the cock bird, which breaks on one with startling suddenness, seeming often only a yard or two away, the bird on such occasions being quite hidden by the tall bracken, among the roots of which it is working. The series of notes repeated again and again are suggested by the words 'Guinea-a-week,' repeated quickly with a drawing out of the last word, ending with an upward inflexion. The Victorian bird is darker both in ground-colour and in markings than the birds from the Blue Mountains, New South Wales."

As regards nesting habits Mr. F. E. Howe's notes cover the ground, though confirmatory accounts have been received from Mr. A. H. E. Mattingley, Mr. J. W. Mellor, and others. Mr. Howe writes: "The nests are always difficult to find and are placed in a variety of positions; some on the top of sword grass tussocks, others in asplenium ferns; some low down in wire grass, and others placed on the ground, and in the last case generally backed into the scrub. Two were noticed without any shelter whatever. The female alone builds the nest, and generally takes a day or a day and a half. The egg is deposited in the nest about 11 a.m. and the clutch is two only, the eggs being laid about every second day. Incubation is performed by the female alone and takes about sixteen days. I think the female is fed on the nest by the male, and both certainly share the task of feeding the young, both in the nest and for about two months afterwards. The young are born blind and featherless, but the eyes open in about five days, and the down is replaced by feathers in a week. At this stage the feathers along the abdomen are white and well defined, primaries half in quill, general colour above dark brown. The gape is creamy-white, mouth yellow. Irides black. At about six weeks old the gape is still white and at three months it has assumed a greyish hue. The breeding-season is from August to February inclusive, and two broods (possibly three) are reared."

The separation of the Victorian form was made by me when compiling my "Reference List," where I characterised it thus:

Pycnoptilus floccosus sandlandi.

"Differs from *P. f. floccosus* in its much darker coloration above and below, the head and back being bluish-brown instead of fawn."

This form has been criticised and found quite constant and valid, so that two forms are acceptable and easily recognisable, viz.:

Pycnoptilus floccosus floccosus Gould.

New South Wales.

Pycnoptilus floccosus sandlandi Mathews.

Victoria.

GENUS—HYLACOLA.

HYLACOLA Gould, Proc. Zool. Soc. (Lond.), 1842, p. 135,

Feb. 1843. Type (by original designation) ... *Acanthiza pyrrhopygia*
Vigors and Horsfield.

SMALL birds with flat heads, long bills, short rounded tails and long slender legs and small feet.

The bill is long and thin, a little longer than the head, the culmen keeled, sides laterally compressed, the tip sharp and decurved, posteriorly notched; the nostrils linear and operculate, placed in short deep groove; the lower mandible expanding a little basally, the interramal space nearly half the length of the bill and fully feathered; two bristles project over the nasal groove and three strong rictal bristles are evident.

The wings are short and rounded, the first primary is short, about half the length of the third, which is a little longer than the second; from the third to the eighth the primaries are subequal and longest; the secondaries are a little shorter but as long as the second primary.

The tail is long and strongly rounded, about equal to the length of the wing.

The legs are long and thin; the tarsus about twice the length of the culmen, scutate in front but sometimes the scutes are obscure and the tarsus appears almost as if booted, bilaminate posteriorly. The toes are thin and delicate; the mid-toe without claw is longer than the inner and outer with the claws; these are subequal and the claws are long and delicately curved; the hind-toe is about half the length of the middle toe, but the claw is longer than the middle claw.

There is very little difference between this genus in detail and *Calamanthus*, and there can be little hesitancy in accepting their very close alliance. Were subgenera used this would probably be the utmost value, yet because these genera were proposed by Gould they have been recognised as such for seventy years.

It is interesting to note that field naturalists have determined from field observations the affinity of these two and also suggest their relationship to *Sericornis*.

Order PASSERIFORMES.

No. 509.

Family CINCLOSOMATIDÆ.

HYLACOLA PYRRHOPYGIA.

GROUND WREN.

(PLATE 430.)*

ACANTHIZA PYRRHOPYGIA Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 227, Feb. 17th, 1827 : New South Wales.

Acanthiza pyrrhopygia Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 227, 1827.

Hylacola pyrrhopygia Gould, Proc. Zool. Soc. (Lond.), 1842, p. 135, 1843; *id.*, Birds Austr., pt. XIII. (Vol. III., p. 39), Dec. 1st, 1843; *id.*, Handb. Birds Austr., Vol. I., p. 346, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 346, 1883; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 28, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 263, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 263, 1904; Campbell, Emu, Vol. VII., p. 92, 1907 (Vic.); Mathews, Handl. Birds Austral., p. 70, 1908; Whitlock, Emu, Vol. X., p. 309, 1911 (S.W.A.); Purnell, *ib.*, XV., p. 41, 1915 (Vic.); Gilbert, *ib.*, Vol. XVIII., p. 292, 1919 (N.S.W.).

Hylacola cauta Gould, Proc. Zool. Soc. (Lond.), 1842, p. 135, Feb. 1843: Western belts of the Murray, South Australia; *id.*, Birds Austr., pt. XIII. (Vol. III., p. 40), Dec. 1st, 1843; *id.*, Handb. Birds Austr., Vol. I., p. 347, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 347, 1883; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 28, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 264, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 265, 1904; A. G. Campbell, Emu, Vol. V., p. 142, 1906 (Kangaroo Island); Mathews, Handl. Birds Austral., p. 70, 1908; Hall, Emu, Vol. IX., p. 128, 1910 (Eyre's Peninsula); Howe, *ib.*, p. 231 (Vic.); Whitlock, *ib.*, Vol. XI., p. 239, 1912 (S.W.A.); Wilson, *ib.*, Vol. XII., p. 34, 1912 (Vic.); Elliott, *ib.*, Vol. XV., p. 180, 1916 (W.A.).

Calamanthus pyrrhopygius Gray, Genera Birds, Vol. I., p. 164, 1848.

Calamanthus cautus Gray, *ib.*

Hylacola pyrrhopygia pyrrhopygia Mathews, Nov. Zool., Vol. XVIII., p. 332, 1912; *id.*, List Birds Austr., p. 199, 1913; Howe, Emu, Vol. XVII., p. 87, 1917.

* The plate is lettered *Hylacola pyrrhopygia* and *H. cauta*.



H. Grönvold, del.

Witherby & Co

HYLACOLA PYRRHOPYGIA
(CHESTNUT-RUMPED GROUND-WREN)

HYLACOLA CAUTA
(RUFUS-RUMPED GROUND-WREN)

GROUND WREN.

Hylacola pyrrhopygia brevicauda Mathews, Nov. Zool., Vol. XVIII., p. 332, Jan. 31, 1912 : (Underbool) Victoria.

Hylacola pyrrhopygia cauta Mathews, Nov. Zool., Vol. XVIII., p. 333, 1912.

Hylacola pyrrhopygia halmaturina Mathews, *ib.*, Jan. 31, 1912 : Kangaroo Island, S.A.

Hylacola pyrrhopygia whitlocki Mathews, *ib.* (Stirling Ranges) West Australia.

Hylacola pyrrhopygia belcheri Mathews, Austral Avian Record, Vol. I., pt. 8, p. 191, March 20, 1913 : Anglesea, Victoria ; *id.*, List Birds Austr., p. 200, 1913 ; Belcher, Birds Geelong, p. 250, 1914 ; Howe, Emu, Vol. XVII., p. 87, 1917.

Hylacola cauta cauta Mathews, List Birds Austr., p. 200, 1913 ; Howe, Emu, Vol. XVII., p. 87, 1917.

Hylacola cauta halmaturina Mathews, List Birds Austr., p. 200, 1913 ; Howe, Emu, Vol. XVII., p. 87, 1917.

Hylacola cauta brevicauda Mathews, List Birds Austr., p. 200, 1913 ; Howe, Emu, Vol. XVII., p. 87, 1917.

Hylacola cauta whitlocki Mathews, List Birds Austr., p. 200, 1913 ; Howe, Emu, Vol. XVII., p. 87, 1917 ; Carter, Ibis, 1921, p. 54.

Hylacola halmaturina S. A. White, Emu, Vol. XII., p. 269, 1913 (Kangaroo Island).

Hylacola pyrrhopygia magna Howe, Emu, Vol. XVIII., pt. 1, p. 59, July 1st, 1918 : Cobbora, New South Wales.

DISTRIBUTION. New South Wales ; Victoria ; South Australia ; Kangaroo Island ; South-west Australia.

Adult male. General colour of the upper-surface dark rust-brown including the top of the head, back, wings, and tail ; outer webs of outer primaries whitish at the base, which gives an indication of a small wing-spot ; inner webs of flight-quills blackish-brown ; upper and under tail-coverts dark chestnut ; outer tail-feathers banded with black subterminally and tipped with grey ; lores and a line above the eye white ; sides of face similar to the crown of the head somewhat intermixed with greyish-white ; throat, breast and sides of body greyish-white with dark elongated centres to the feathers, which almost disappear on the middle of the abdomen ; lower flanks and thighs ochreous-brown ; under wing-coverts pale buff ; under-surface of flight-quills dark brown ; lower aspect of tail similar to its upper-surface. Bill brown, lower mandible lighter, feet brown, tarsus lighter ; eyes brown. Total length 145 mm. ; culmen 11, wing 60, tail 59, tarsus 23. Figured. Collected at Woollongong, New South Wales, in June 1890.

Adult female. General colour of the upper-surface dark rust-brown, including the head, back, wings, and tail ; inner webs of flight-quills pale hair-brown ; upper and under tail-coverts chestnut ; middle tail-feathers similar in colour to the back, the outer ones differ in having a broad subterminal band of black with grey tips to the feathers ; lores and feathers above the eye and sides of the crown buff like the cheeks ; sides of the neck and sides of body greyish-brown with dark elongated centres to some of the feathers ; throat, breast, and middle of the abdomen buff with dark centres to the feathers, which are almost obsolete on the abdomen ; axillaries and under wing-coverts pale buff ; under-surface of quills dark brown, somewhat paler on the edges ; lower aspect of tail similar to its upper-surface. Tarsus brown, feet darker, bill brown, lower mandible lighter. Eyes brown. Total length 140 mm. ; culmen 10, wing 56, tail 54, tarsus 20. Figured. Collected at Exeter, New South Wales, in October 1914.

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The female is very similar to the male but for the streaking on the feathers of the throat and breast not so pronounced and the under-surface buff.

Adult female.—Rufous-brown above including the head, back, and wings, becoming chestnut on the rump and upper tail-coverts; median and greater upper wing-coverts tipped with white; primary-coverts dark brown; quills pale brown edged with rufous-brown on the outer webs, paler on the outermost feathers; tail olive-brown edged with rufous-brown on the outer webs of the feathers with a broad subterminal black bar and slate-grey tips, the middle feathers uniform olive-brown without any dark subterminal bar; supraloral streak and line over the eye white; ear-coverts rufous-brown with minute buff shaft lines; throat, breast and under-surface ochreous-buff with dark shaft streaks; middle of abdomen inclining to white; thighs dusky; under tail-coverts bright rufous; under wing-coverts grey. Total length 142 mm.; culmen 15, wing 52, tail 56, tarsus 21. Collected at Lethbridge, Victoria, in April 1907.

Immature.—Crown of head, hind-neck, upper-back, dusky-brown, becoming coffee-brown on the lower back, wings, and central tail-feathers, the median and greater upper wing-coverts are paler at the tips; flight-quills blackish-brown on the inner-webs; rump, upper and under tail-coverts deep chestnut; outer tail-feathers banded with black subterminally and tipped with ash-grey; lores and a line above the eye whitish; sides of the face similar to the crown, slightly speckled with grey; chin, throat, fore-neck and upper-breast chestnut, more or less intermixed with grey; middle of abdomen white; sides of the body coffee-brown with dark slate-grey bases to the feathers; thighs slate-grey; under wing-coverts pale chestnut; under-surface of flight-quills dark brown; lower aspect of tail bronze-brown; banded subterminally with black and tipped with slate-grey. Collected at Landslip, Anglesea, Victoria, on the 16th of October, 1912.

Immature. General colour of the upper-surface chestnut with a greyish tinge on the top of the head, hind-neck and sides of the neck; greater upper wing-coverts and primary-coverts tipped with buff, outer edges of some of the primaries whitish; inner-webs of the flight-quills dark brown with pale margins; middle tail-feathers like the back, the outer ones banded subterminally with black and tipped with greyish-white; sides of the face similar to the top of the head but rather paler with whitish lines to the feathers; throat, breast, and abdomen ferruginous, paler and inclining to white on the middle of the breast and abdomen and darker on the sides of the body; under wing-coverts similar to the breast but paler; under-surface of flight-quills hair-brown with paler margins; lower aspect of tail grey tinged with ferruginous, and banded with black. Eyes, bill and legs brownish. Collected at Exeter, New South Wales, in October 1914.

Nest. Dome-shaped with side entrance, composed of grasses and bark and lined with feathers, and placed near the ground, and measures 4 inches inside by 6 deep.

Eggs. Clutch, two. Ground-colour pinkish-white to buff, spotted with brownish, but more at the larger end, where a zone is formed: 19 mm. by 14.

Breeding-season. July to December.

HYLACOLA CAUTA.

Adult male. General colour of the upper-parts dark smoke-brown, including the top of the head, hind-neck, sides of neck, back and wings, with a slight tinge of hoary-grey on the head and sides of the neck; primary-coverts blackish; outer webs of some of the outer-primaries white at the base, which forms a wing-speculum; inner webs of flight-quills blackish; upper tail-coverts dark chocolate-brown;

GROUND WREN.

central tail-feathers blackish-brown with obsolete cross-bars and greyish tips to some of the feathers, the outer feathers darker and more inclining to black and tipped with white; base of forehead, lores, and a line above the eye white like the eyelids; a black spot in front of the eye; sides of face similar to the crown with minute white streaks; throat, breast, and abdomen white broadly streaked with black, or blackish; sides of body and thighs dusky-grey; under tail-coverts chestnut becoming paler at the tips; axillaries and under wing-coverts slate-grey, the greater series and quill-lining blackish; lower aspect of tail dusky greyish-brown, with a blackish subterminal band, and tipped with white. Bill dark horn, feet dark brown, legs lighter, eyes yellowish-brown. Total length 153 mm.; culmen 12, wing 60, tail 56, tarsus 24. Figured. Collected on Middle River, Kangaroo Island, South Australia, and is the type of *Hylacola cauta halmaturina*.

Adult female. General colour of the upper-surface dark smoke-brown, including the top of the head, hind-neck, back, scapulars, and upper wing-coverts; primary-coverts blackish; base of outer primaries white on the outer webs, which form a wing-speculum; inner webs of the flight-quills blackish-brown with whitish margins; upper tail-coverts dark chestnut; central tail-feathers dark smoke-brown with greyish-white tips and obsolete cross-bars, outer feathers blackish tipped with white; base of forehead, loreal streak which extends over the eye and along the sides of the crown white like the eyelids; a short blackish supraloral streak; sides of the face similar to the top of the head with an admixture of whitish; throat, breast, and abdomen yellowish-white with dark elongated streaks to the feathers; sides of body and thighs dusky-brown; under tail-coverts like those on the upper-surface; under wing-coverts and inner margins of quills below pale buff; remainder of quill-lining dark brown; lower aspect of tail blackish with white tips to the feathers. Bill dark horn; feet slate; eyes brown. Total length 132 mm.; culmen 11, wing 54, tail 51, tarsus 21. Figured. Collected at Gerahmin (Mallee), Victoria, on September 10th, 1912. The female is very similar to the male but has the under-surface buff.

Immature. Very similar to the adult, but the eye-streak is buffish.

Nest.—Dome-shaped with side entrance, composed of bark and grasses and lined with finer grasses, and sometimes with feathers or other soft material. Very similar to that of *H. p. pyrrhopygia* and about the same size. Placed near the ground.

Eggs.—Clutch, two to three. Ground-colour purplish-brown shading to a lighter colour at the smaller end. Sometimes a zone is found at the larger end. 21 mm. by 15.

Breeding-season.—September to November or December.

WHEN Vigors and Horsfield described the Australian birds in the collection of the Linnean Society they proposed as a new species of their new genus *Acanthiza*, the present form under the name *Acanthiza pyrrhopygia*, remarking however: "This species has a tail more elongated, and somewhat more graduated than the typical species of the genus. In its other external characters and in the disposition of the colours it sufficiently accords with the group. By the characters of its tail it appears to approach the *Maluri*; and with *Malurus exilis*, a species described above, it may be said to form a passage between these two closely allied groups."

Gould proposed a new species and a new genus for this form and gave the

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following account of the previously named species: "The situations most favourable to the habits of this bird are open sterile spots, here and there studded with clumps of brushes or dense herbage, the beds and sides of creeks, and the crowns of stony hills. I have generally observed it in small companies, probably the brood of a single pair. Its agreeable song is poured forth while the bird is perched upon some conspicuous part of a bush, or some little spray among the branches of the large fallen trees, where it loves to dwell, as on the approach of an intruder it can readily and effectually secrete itself among the high grass and herbage which have grown up amidst the branches. The facility with which it creeps among or threads these little thickets is surprising. It rarely flies, but depends for progression more upon the rapidity with which it can pass over the ground, than upon the feeble powers of its small rounded wing. I found it plentiful on the low hills to the north of the Liverpool Plains, as well as in most parts of South Australia, and believe it to be a stationary bird, for it appeared to be equally numerous in summer and winter. Its food consists of insects of various kinds."

His second species he named *Hylacola cauta* and gave a fairly good description, but it was not at first recognised as distinct by other workers.

Gould wrote concerning this species: "The only locality in which I have seen this species is the great scrub clothing the banks of the River Murray in South Australia, where it was not uncommon, but so excessively shy that I obtained but a single specimen during my stay in the district. Its timidity being so great, and its natural habitat the more dense parts of the scrub, it is a species which must for a long time be exceedingly scarce in our collections. With the exception of its being even more shy, its whole habits and economy appeared to be very similar to those of *H. pyrrhopygia*. It carries its tail perfectly erect, and hops over the ground and threads the bushes with the greatest ease, generally keeping among the more dense parts of the low bushes, and only exposing itself on the outermost twigs when desirous of pouring forth its song, which is sweet and harmonious. In size the *H. cauta* is rather less than the *H. pyrrhopygia*, has the markings of the under-surface much bolder, and the chestnut-coloured mark on the rump of a much deeper tint."

Mr. C. F. Belcher, who discovered the bird called after him, writes from Anglesea, Victoria: "I heard the note of a bird which was new to me, a short, rasping chirp, and caught sight of a small brown bird with conspicuous chestnut rump, as it flew from one grass tree to another, into which it ran among the leaves at the base. We put it up several times with considerable difficulty, for it would not fly until one got right to the bush where it was, and then it generally made a hurried exit on the opposite side. It was rather like a *Calamanthus* or even a *Sericornis*, but the bright reddish rump patch is not

GROUND WREN.

seen on any species of those genera, and remembering the name 'Red-rumped Hylacola,' we concluded that this was one—the first and only time I have found a vernacular name of any use for identification purposes. . . . They ran with tail held up at right angles to the body at great speed, and dodged in and out of the fallen brushwood in most agile fashion. In perching they also held the tail high, after the manner of a *Calamanthus*. Nest a dome-shaped structure of grasses placed in a small hollow in the ground which the birds had scraped out at the foot of a tuft of herbage. It was lined warmly with feathers and had an entrance at the side."

Captain S. A. White states: "Is found in the scrub and mallee country in many parts of this State. A lively bird hopping about amongst the undergrowth with tail almost over their backs, uttering a low chitting call. The form inhabiting Kangaroo Island is fairly plentiful."

Mr. A. G. Campbell has written: "Is plentiful upon Kangaroo Island in short scrub and heather. The young is distinguished by a light fawn-coloured throat and chest, though it has the dark centred feathers of the old bird"; while he added "*Hylacola pyrrhopygia* is found about the heather country of the Grampians in Victoria but no further east. The male has a pleasing song which it utters after the manner of a *Calamanthus* from the twig of some bush."

Under the name *H. pyrrhopygia* Mr. F. E. Howe wrote: "Am not sure about this species but think I flushed one at Griffith's Gully in very dense scrub," and then under *H. cauta* sent me the following note: "In the mallee when the day, is warm one would think it devoid of bird-life but when cool the sweet warbling song of this terrestrial and fleet-footed little creature was sure to be heard. They appear to be fond of locating themselves near a roadside or track and wherever the surveyors had cut tracks or traverses they appeared to congregate. They also like to place their nests under the fallen branches that had been cut down by the scrub cutters. On our last trip we found a few nests on a traverse or cut line. One that was found by flushing the female contained three young fully fledged. They were identical in plumage to the parents, only the gape, which was of a creamy colour, disagreeing. Mouth orange and the irides dark brown. They flushed from the nest and it was a hard job to capture them as they fluttered and ran after the female through the scrub. On Oct. 10th Mr. J. Scarse piloted us to a thick patch of scrub in search of *Leipoas*' nests, and on descending a slight sandhill that was covered with a profusion of scrubby growths Mr. Ross flushed a bird from a nest that was placed under a thin dead bush; it contained one youngster only that was blind and naked, the gape was creamish in colour and the skin all over the chick was very black."

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Mr. Sandland wrote from Balah, South Australia: "*H. cauta* is rare and extremely shy and only occurs in thick scrub."

Mr. J. W. Mellor has also written me: "Some difference of opinion has arisen regarding this bird; I always took the large bird found on Eyre's Peninsula to be *H. pyrrhopygia*, but if it be *H. cauta* then it is about the most timid and cautious bird that can be met with; it moves about in the thick bushes and creeps through the growth like a mouse, and when it has to cross an open space it puts its head down and half runs, half flies across the space, only to dart into the next bush and out on the other side and repeat the performance over and over again; its movements being too quick to get a snapshot at in such close quarters and even when shot, the bird, if only wounded, will dart beneath the leaves, sticks and hides itself. I came upon them a couple of miles inland from Arno Bay in Spencer's Gulf on the Eyre's Peninsula side; here the stunted eucalypts and broom bush gave good shelter, and the bird would make known its whereabouts by a long sweet whistle, very loud for the size of the bird, this I would answer, and the bird would answer back and I would get nearer and nearer, until within a few yards and the bird would at last dart mouse-like from beneath a bush and thread its way through bush after bush, never taking to the wing above the low bushes. The note of the bird is a sweet full song, somewhat like that of a canary, which, I believe, is only uttered by the male. The Kangaroo Island bird is smaller and its habits are less wary and frightened."

A. G. Campbell, recording the birds of Kangaroo Island, wrote: "*H. cauta*. On all the uplands the thick shrubby vegetation gave cover to numerous pairs of this bird. Many had full-grown young, while two dome-shaped nests, rather small in proportion to the bird, were found ready for eggs. The male bird is a pretty songster, and always attracts notice by his strong-throated warblings. The female is less brightly marked, and the young is distinguished by a light fawn-coloured throat and chest, though it has the dark centred feathers of the older birds."

A. J. Campbell, a little later, wrote of *Hylacola pyrrhopygia*: "This rare bird was recently found in the Dandenongs, near Melbourne." Mr. W. E. Molesworth forwards another specimen, which he procured at Lethbridge last May. He states: "I have flushed this bird in a piece of country a few acres in extent, in the centre of a stringy-bark forest, where grass trees (*Xanthorrhœa*) are growing quite alone on sandy soil. The birds are hard to flush, but can be traced by their singing or calling to each other."

Whitlock, dealing with the birds of the Stirling Ranges, South-west Australia, wrote: "Another interesting species was *Hylacola pyrrhopygia* (Chestnut-rumped Ground Wren). This species was local, and inhabited

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similar country to *Malurus pulcherrimus*. It is interesting to note that wherever I found the present species I found *M. pulcherrimus*; but, on the other hand, the haunts of the latter were more varied than those of the former, which seemed restricted to low-growing scrub on stony hillsides. This bird is an early breeder. Fully fledged young (they call to one another with a plaintive cry) were on the move early in October. Possibly the species is double-brooded. In our State it has a wide range, for I met with it in the Wongan Hills, 400 miles to the north, and again some 300 miles to the east, in the Lake Dundas country." The next year, however, Whitlock wrote: "In my previous paper I referred to this species as *Hylacola pyrrhopygia*. On referring a skin, however, to experts, I find that I was wrong, the bird being really *Hylacola cauta*. I determined to have a good hunt for the nest. I was not long in locating two pairs of birds, though the species is distinctly local, and rare, in the Stirling Ranges. I fully expected to find this bird an early breeder, and I was not mistaken. I was much hindered by the rough winds prevailing during the greater part of August and September in my searches and observations on the nesting and general habits of the more secretive birds. Especially was this the case with the present species. The easiest way to discover the presence of a pair is to listen for the song of the male, which, to my ears, resembles somewhat that of *Acanthiza apicalis*, and again that of *Calamanthus montanellus*. *Hylacola cauta*, however, does not appear to sing in the very early morning, which is a pity, for the winds at that early hour are usually light; and as the bird has not at all a powerful voice, and is by no means a constant singer, one does not hear it to advantage in half a gale of wind. It was some days before I found the first pair, which haunted rather open and low scrub, with a few patches of marlock and stunted jarrah trees. On the ground itself were small patches of what looked like a dwarf banksia, and it was amongst this latter growth that I caught sight of a beautiful male *Hylacola*. It was only by keeping motionless that I had any chance of watching him. On my making the least movement he hopped or flew at once into a clump of marlock, and disappeared. Once or twice I saw him catch a caterpillar, and hop into the scrub with it—I suppose to share the capture with his mate, whom I never once saw. Despite the most persistent and systematic search I failed to find the nest of this pair. I flushed a bird from a nest built in a little hollow excavated in the ground under the lee of a clump of dwarf banksia. I hid myself and waited patiently until the bird returned, when I satisfactorily identified her as *Hylacola cauta*—a similar bird in all respects to the specimen procured the previous year. The nest was globular, and much like that of a *Calamanthus*. . . The eggs appear to have an affinity to those of *Sericornis* and also to those of *Calamanthus*. The nest, too, belongs to the same class as those of the two

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latter kinds. As a field naturalist, therefore, I should be inclined to place the three genera very near together rather than admit other intrusive genera in the present classification obviously less nearly related."

F. E. Wilson, writing about Oologists in the Mallee, stated: "*H. cauta*. These shy little aviformes are very common right through the mallee, and we spent a considerable amount of time searching for their nests, which are sometimes beautifully hidden. In places where surveying operations had been carried on, straight lines cut through the scrub were often met with, and it was amongst the debris on these lines that the *Hylacola* loved to build. More often, however, the nest was placed in the fallen bark at the foot of the mallee saplings, and in these cases it harmonized with its surroundings so well as to make it an object extremely difficult to detect. They leave the nest at the slightest sign of danger, and run off quickly to a distance, when they usually utter two or three low notes. Nearly every patch of turpentine scrub had a few families of *Hylacolas* amongst it."

Captain S. A. White has recorded: "On Kangaroo Island we came out on a patch of country which had been lately cleared by fire. It was here that we came upon the Ground Wren. These shy little birds were fairly plentiful, and specimens were often seen darting over the open ground between the bushes, uttering a chattering call. Few other birds were seen."

Purnell has written: "There is no doubt that Mr. G. M. Mathews is justified in separating this bird from the New South Wales form. We found it on the heathy hills behind Anglesea, in the dry and scrubby creeks, and also in the burnt country near Point Road Knight. Its actions are very rapid, and when travelling across the open and burnt scrub its motion is a combination of running and flying, the tail being held perpendicularly. The song is not unlike that of a *Calamanthus*, but in a higher key and not so sustained."

Elliott accepted *Hylacola cauta* as the name for the West Australian form and wrote from Dumbleyung: "These birds are somewhat scarce, shy, and difficult to approach. They seem to remain about the same patch of scrub for some time; in fact, I am not sure but what they make it their permanent abode unless interfered with, when they quickly depart. Of course, I cannot be sure whether they are the same pair, but in the patch of scrub referred to above I have seen a couple for over two years. You may travel for two miles round, and will not find another bird. They favour thick scrub of the stunted variety, and, while uttering a peculiar little note or call, hop and flit from point to point in a most amusing fashion. So small do the birds appear and so quick are their movements, that they remind one of mice. They will suddenly cock up their tail, so that one obtains a glimpse of its red base. While flying they also exhibit it, but when annoyed or alarmed they spread the tail,

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and then it is that one obtains the best view of the colour. In most patches of scrub there are clear spaces, sometimes 15 feet across, and when a Ground Wren wishes to cross this it does so at a most astonishing rate, almost as though it were afraid of being seen in the open. I have never yet seen one of these birds in open country. Whether the Ground Wren hops or runs I will not definitely say, because I have not satisfied myself on that point; but I believe that it hops. When it does rise from the ground it is only high enough to clear any bushes in the line of flight, and then the bird suddenly dives to earth again. In addition to the note uttered while flitting among the scrub, these birds have a beautiful song, or rather, I presume, the male has. The song is very soft, but very sweet, with a considerable range of notes. One must be within a few feet of the singer to hear it, and although it is difficult to get so close at the proper time, the trouble is well repaid. Recently I managed to get within three feet of a Ground Wren by crawling to a clump of suckers. The bird stood pecking at the ground. It was early morning, and the bird, after preening its feathers, burst into a song. Suddenly it flitted back to the scrub, and at that moment down came a Honey-eater (*P. ornata*) again. The Ground Wren brought its wings forward, spread its tail, and ruffled its feathers, until it looked like a ball, giving me a fine view of the red tail. The next instant the bird dived over a piece of scrub, and was lost to view."

Gilbert (a new worker with a famous name) has given a nice account of the typical form under the name *Hylacola pyrrhopygia*: "Broadly speaking, the distribution of the Chestnut-rumped Ground-Wren extends from the coastal regions of New South Wales into Victoria. It is, however, most numerous along the sandstone ridges of the County of Cumberland, N.S.W., where it is resident, and which constitutes its breeding haunts. I have seen odd pairs at Ourimbah, 56 miles, and at Dora Creek, 80 miles north of Sydney, and also on ridges of the Barrengay Mountains, near Moss Vale, about 100 miles south. Around Sydney this species shows a decided preference for the sandstone areas clothed with the numerous representatives of the orders of plants *Proteaceæ*, *Rutaceæ*, and *Epacridaceæ*, including the stunted apple tree (*Angophora cordifolia*). Very few species of other birds are to be found in the localities frequented by *Hylacola pyrrhopygia*. Of the two sexes the male is the bolder, and when one has mastered his call notes he can be lured out into the open with ease. In the spring time, when breeding is in full swing, I have induced him to come within a yard or two, and once when I had captured a young bird which had just left the nest I imitated his call and simultaneously made the young one squeak, which tactics succeeded in bringing him within hand's reach. He was indeed a beautiful specimen, and all the while I held the youngster he ran around me whistling at his best.

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Personally, I consider him to be one of our sweetest and most melodious songsters. He is an exquisite mimic, the birds whose notes I have identified so far being the Fan-tailed Cuckoo, Rufous-breasted Whistler, Yellow-breasted Whistler, Grey Shrike, Thrush, and the Spine-billed, Tawny-crowned and White-bearded Honey-Eaters. The notes of these birds are intermingled with those of his own, more especially during the breeding period. This mimicry, too, is the best indication that nidification has commenced. The female is always exceedingly shy, and, almost needless to say, is a visual nonentity in the breeding-season. However, both sexes are habitually cautious, and while they are foraging in the undergrowth for some entomic morsel they are ever on the alert, and never neglect to ascend to some vantage-ground from whence they can see that no enemy is lurking round. More usually the male assumes this responsibility, and if 'all's well,' frequently gives forth his magnificent song, but should an intruder be lurking round he gives a warning note, and both make themselves scarce the while. Sometimes the female creeps up to watch for any prospective enemy, and should 'no enemy' be in sight utters a few clucks, and both resume their foraging together; but she, too, gives a warning note similar to that of the male, when they both disappear into the thickest part of the undergrowth. In the late winter and early spring, when the male is in full song, he frequently ascends a small sapling to ten or fifteen feet to give forth his liquid notes, but never leaves the foliage, and descends as he arose. . . . The breeding-season commences in July and continues till November, or possibly later in favourable seasons, when one or more broods are brought forth. Odd nests may probably be found in the autumn."

Mr. Edwin Ashby has written me: "I have only met with *H. pyrrhopygia* in the 'heath-like' scrub near Middle Harbour, Sydney, but *H. cauta* is very common at Karoonda, but owing to its shy habits needs looking for. If one is quiet it can sometimes be seen quite close to, moving rapidly from clump to clump of mallee almost always on the ground with tail erect. In the mallee near Woodchester on Sept. 10th, 1919, the cock birds began to sing with the first streaks of dawn; the song is a sweet little trill, after the character of that of a *Sericornis*, the bird vocalising usually from the top of some low bush. At that date a nest with fresh eggs was found. I have never seen this bird outside the mallee country myself, but many years ago Mr. Hall, of Teatree Gully, found it breeding in some heathy country on the foothills of the Mount Lofty Range about seven miles N.E. of the City of Adelaide. I have collected it on Kangaroo Island."

This bird was first described by Vigors and Horsfield from the neighbourhood of Sydney, and fifteen years later Gould proposed for it a new genus and at the same time added a new species from the Western Belts of the Murray,

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South Australia. Six years afterward he wrote: "When I characterised this species (*H. cauta*) in the 'Proceedings of the Zoological Society of London,' I had only seen a single example; I have since received a second, proving the correctness of my view of its being quite distinct from the *H. pyrrhopygia*, a fact disputed by Mr. Strickland, who had stated it to be his opinion that my figures were referable to one and the same species, but who, upon an examination of the specimens themselves, acknowledged he was in error."

Nevertheless, Australian workers found difficulty in separating the species when they collected specimens for themselves, more especially when they received birds from different localities giving extension of range.

I reviewed the series at hand in 1911 for the purpose of my "Reference List" and concluded they were only subspecifically separable, but also noted that instead of two subspecies, five were easily diagnosed, and these I named as follows:

Hylacola pyrrhopygia pyrrhopygia (Vigors and Horsfield).

New South Wales.

Hylacola pyrrhopygia brevicauda Mathews.

Victoria.

"Differs from *H. c. cauta* in its paler coloration above and in having a shorter tail. Wing 55-8 mm., tail 53 mm., tail (typ) 60 mm."

Hylacola pyrrhopygia cauta Gould.

South Australia.

Hylacola pyrrhopygia halmaturina Mathews.

Kangaroo Island.

"Differs from *H. c. cauta* in its larger size and darker coloration above; the rump coloration deeper and duller red. Wing 59-60 mm., typ. av. 57 mm."

Hylacola pyrrhopygia whitlocki Mathews.

West Australia.

"Differs from *H. c. cauta* in being lighter above, with less red on the rump and more spotting on the breast."

The three new subspecies had all been at times referred to *H. cauta*, and were, therefore, compared with that race, but through the comparison the error *H. c. cauta* was written instead of *H. p. cauta* which was intended.

A little later I received specimens from Anglesea, near Geelong, Victoria, and reconsidering the matter, concluded that two species might be accepted and named the Geelong bird.

Hylacola pyrrhopygia belcheri.

"Differs from *H. p. pyrrhopygia* in its much smaller measurements, especially in the bill. This subspecies has the black subterminal band on the tail; *H. p. brevicauda* has a black tail."

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Continuing this view in my 1913 "List" I admitted :

Hylacola pyrrhopygia pyrrhopygia (Vigors and Horsfield).

New South Wales.

Hylacola pyrrhopygia belcheri Mathews.

Victoria.

Hylacola cauta cauta Gould.

South Australia.

Hylacola cauta halmaturina Mathews.

Kangaroo Island.

Hylacola cauta brevicauda Mathews.

Victoria.

Hylacola cauta whitlocki Mathews.

South-west Australia.

Later F. E. Howe made a study of the species and admitted the forms named ; he later added another :

Hylacola pyrrhopygia magna

from Cobbora, New South Wales, as being paler above and below, eyebrow whiter, striping on throat and breast more linear and tips of outer tail-feathers whiter and broader, and also larger in size generally. Consequently two species with seven subspecies were admitted, but I am disposed to consider them all only subspecifically related, especially as some of the subspecies differ more from each other than the "species" do. As it is considered certain that these are relations of *Calamanthus* that conclusion should be logical, unless we recognised many species of the latter genus. Moreover, Howe has noted that perplexing specimens occur and consequently the plumage changes are not absolutely known. With regard to the geographical distribution it will be noted that none of the forms overlap and that authorities have found difficulty in distinguishing the species.

This would consequently allow :

Hylacola pyrrhopygia pyrrhopygia (Vigors and Horsfield).

New South Wales (coastal) ? into Northern
Victoria.

Hylacola pyrrhopygia magna Howe.

New South Wales (interior).

Hylacola pyrrhopygia belcheri Mathews.

Victoria (coastal).

Hylacola pyrrhopygia brevicauda Mathews.

Victoria (mallee).

Hylacola pyrrhopygia cauta (Gould).

South Australia (mallee).

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Hylacola pyrrhopygia halmaturina Mathews.

Kangaroo Island, South Australia.

Hylacola pyrrhopygia whitlocki Mathews.

South-west Australia.

This cannot be considered conclusive as if the above-named subspecies prove valid (and so far they have fulfilled the tests of independent criticism) many others will be named. The sexual, and mayhap seasonal, plumages do not appear to be well known yet.

Recently Mr. Tom Carter has written: "The Western Ground-Wren is another shy bird that occurs to the east of Broome Hill, and is usually seen in thick scrub, growing on stony or rough ground. I was fortunate in seeing a good many of them in mid February 1919, and obtained a few specimens; but they are difficult to shoot on account of the great speed at which they hop and move about under the bushes, with tails erect. They remind me, by their rapid elusive movements, of the *Diaphorillas* at Shark Bay."

GENUS—PSOPHODES.

PSOPHODES Vigors and Horsfield,
Trans. Linn. Soc. (Lond.), Vol.
XV., p. 328, Feb. 17, 1827. Type
(by monotypy) *P. crepitans*=*Corvus olivaceus* Latham.

FROM paintings Latham described this species in the genera *Muscicapa* and *Corvus*, which suggests its abnormal appearance. Vigors and Horsfield, upon receipt of actual specimens, proposed for it a new genus, and at the present time its affinity is quite unknown.

Large Cinclosomatine (??) birds with full crest, stout strongly laterally compressed bills, rounded wings, very long wedge-shaped tail of broad feathers and long stout legs and feet.

The bill is nearly as long as the head, strongly laterally compressed, its depth at base about half its length, culmen steeply keeled and strongly arched, tip little decurved and not very pointed; lateral edges of upper mandible nearly straight, scarcely notched after tip; the nostrils appear as small circular apertures anteriorly placed in small semicircular nasal groove, and almost hidden by frontal feathering and bristles; lower mandible shallow and narrow, rami very short and little expanded, interramal space very small and fully feathered rictal bristles few and obscure.

The wing is very rounded, the primaries from the fourth to the tenth about equal and equalled by the secondaries; the third primary is a little less, while the second is about three-quarters the length of the fourth and the first about half the length of the third.

The tail is composed of twelve broad feathers forming a very long, strong wedge.

The legs are long and stout, the tarsus strongly scutellate in front, six heavy scutes being counted, and bilaminate behind.

It will be interesting in this connection to quote what Vigors and Horsfield wrote about this form nearly one hundred years ago:

“This form offers one of the greatest difficulties to the investigator of affinities. The birds that exhibit it are said to be *Honey-eaters*. This we much doubt. They are found among the flowers of the *eucalypti*; but this circumstance may arise as well from their being in search of the insects abounding

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in these flowers, as of the honey contained in them. It is strange that we have never been able to examine a tongue of these birds, although the skins are common. Their general appearance indicates much of the Shrike. The strong bristles of the *rictus* suggest the idea of their food being animal, and indeed originally induced Dr. Latham to place them with the Linnean *Muscicapæ*. The integrity of the margins of the bill, on the other hand, seems to militate against this supposition. The extreme shortness and roundness of the wing again, and the long and graduated tail, are additional characters that demand consideration. In these characters, as well as in the length and softness of the feathers on the back, they approach the long-tailed American *Thamnophili*. On the whole these birds form an interesting object of research to the naturalist, who may have the opportunity of determining their exact station in the Order, by observation of their habits and characters in their native country. Until these points are ascertained, we leave them at the extremity of this family (Honey-eaters), to which they are usually referred."

As far as I have noted nothing elucidating the relationship of this aberrant group has been recorded and it is quite obvious that it has little or no close relationship with the birds just preceding it and very little more to the ones here succeeding it.

Order PASSERIFORMES.

No. 510.

Family CINCLOSOMATIDÆ.

PSOPHODES OLIVACEUS.

COACHWHIP-BIRD.

(PLATE 431.)

CORVUS OLIVACEUS Latham, Index Ornith. Suppl., p. xxvi. (after May 30), 1801: New South Wales.

Corvus olivaceus Latham, Index Ornith. Suppl., p. xxvi., 1801.

White-cheeked Crow Latham, Gen. Synops. Suppl. II., p. 118, 1801.

Muscicapa crepitans Latham, Index Ornith. Suppl., p. li., 1801: New South Wales.

Coachwhip Flycatcher Latham, Gen Synops., Suppl. II., p. 222, 1801.

Psophodes crepitans Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 329, 1827; Gould, Birds Austr., pt. III., (Vol. III., pl. 15), June 1st, 1841; *id.*, Handb. Birds Austr., Vol. I., p. 312, 1865; Diggles, Ornith. Austr., pt. XX., 1868; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 350, 1883; Ramsay, Tab. List Austr. Birds, p. 7, 1888; Hall, Key Birds Austr., p. 29, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 265, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 336, 1904; Mattingley, Emu, Vol. V., p. 192, pl. xv., 1906 (Vic.); Mathews, Handl. Birds Austral., p. 70, 1908; Chandler, Emu, Vol. IX., p. 248, 1910 (Vic.); Cleland, *ib.*, Vol. XI., p. 84, 1911; Croll, *ib.*, Vol. XIV., p. 98, 1914 (Vic.); S. A. White, *ib.*, p. 141, 1915 (Vic.); Chandler, *ib.*, Vol. XIX., pl. xxx., 1919 (Vic.); S. A. White, *ib.*, p. 218, 1920 (Q.).

Pica gularis Wagler, Syst. Avium, Pica, sp. 13 (*ante* Oct.), 1827: New South Wales.

Dasyornis abeillei Lesson, Echo du Monde Savant, 11th year, No. 49, June 23, 1844: New South Wales.

Cf. Menegaux, Art. d'Ornith. Lesson, p. 117, 1913.

Psophodes crepitans lateralis North, Rec. Austr. Mus., Vol. III., p. 13, Jan. 7, 1897: Boar Pocket, North Queensland; Hall, Key Birds Austr., p. 29, 1899.

Psophodes lateralis North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 339, 1904; Mathews, Handl. Birds Austral., p. 70, 1908; Campbell and Barnard, Emu, Vol. XVII., p. 26, 1917.

Psophodes olivaceus olivaceus Mathews, Nov. Zool., Vol. XVIII., p. 333, 1912; *id.*, List Birds Austr., p. 200, 1913.



H. Grönvold, del.

Witherby & C^o

PSOPHODES NIGROGULARIS
(BLACK-THROATED COACHWHIP-BIRD)

PSOPHODES OLIVACEUS
(COACHWHIP-BIRD)

COACHWHIP-BIRD.

Psophodes olivaceus scrymgeouri Mathews, Nov. Zool., Vol. XVIII., p. 333, Jan. 31, 1912 : (Gippsland) Victoria ; *id.*, Austral. Av. Rec., Vol. I., p. 58, 1912 ; *id.*, List Birds Austr., p. 200, 1913.

Psophodes olivaceus sublateralis Mathews, Nov. Zool., Vol. XVIII., p. 334, Jan. 31, 1912 : Tweed River, New South Wales ; *id.*, Austral. Av. Rec., Vol. I., p. 58, 1912 ; *id.*, List Birds Austr., p. 201, 1913.

Psophodes olivaceus lateralis Mathews, Nov. Zool., Vol. XVIII., p. 334, 1912 ; *id.*, List Birds Austr., p. 201, 1913 ; *id.*, South Austr. Ornith., Vol. 2, p. 57, 1915.

Psophodes olivaceus magnirostris Mathews, Austral. Av. Record, Vol. I., pt. 4, p. 92, Sept. 18, 1912 : Rockhampton, Queensland ; *id.*, List Birds Austr., p. 201, 1913.

DISTRIBUTION. Eastern Australia from North Queensland to Victoria.

Adult male. Crown of head, crest, and nape, lores, feathers below and behind the eye black like the sides of the hind-neck ; hind-neck, back, wings and tail bronze-green ; inner webs blackish-brown ; the three lateral tail-feathers on each side more or less black with cream-white tips ; cheeks and sides of neck white ; throat, breast and abdomen black with white tips or narrow fringes to the feathers ; lower flanks and under tail-coverts bronze-green like the axillaries ; under wing-coverts blackish-brown like the under-surface of the flight-quills ; lower aspect of tail blackish with smoke-white tips to some of the outer feathers. Bill black ; eyes and feet brown. Total length 270 mm. ; culmen 20, wing 99, tail 122, tarsus 34. Figured. Collected on the Johnstone River, North Queensland, on the 21st of June, 1900.

Adult female. Similar to the adult male.

Female, Immature. General colour both on the upper and under-surface dark smoke-brown with a tinge of dark bronze-green on the outer aspect of the wings, upper tail-coverts and tail ; inner webs of flight-quills blackish-brown ; the two outer pairs of tail-feathers blackish, slightly tipped with white ; throat and abdomen slightly tinged with dark dusky-grey ; under-surface of flight-quills blackish-brown ; lower aspect of tail blackish, some of the outer feathers slightly tipped with white. Bill, eyes and feet black. Collected at Atherton, near Cairns, North Queensland, on the 11th of October, 1909.

Immature male. Crown of head and crest blackish-brown ; sides of face similar ; hind-neck, entire back, outer aspect of wings, upper tail-coverts and tail dark bronze-green ; inner webs of flight-quills blackish-brown ; the two outer tail-feathers on each side blackish with obsolete cross-bars and whitish tips ; throat dusky-grey ; breast, sides of body, and under tail-coverts dark smoke-brown ; thighs and under wing-coverts soot-black ; abdomen pale dusky-grey ; under-surface of flight-quills blackish-brown ; lower aspect of tail blackish with whitish tips to some of the outer-feathers. Collected at Thirrone, New South Wales, on the 17th of April, 1909.

Nest. Cup-shaped, and loosely built, composed of rootlets and lined with finer ones. Outside measurements 6 inches by 3 deep. Inside 3 inches by 2 deep.

Eggs. Clutch, two. Ground-colour blue or bluish-white, spotted with irregular spots of black and lavender. 28-30 mm. by 20.

Breeding-season. August to January.

WHEN Latham examined the Watling drawings he noted one which he determined as a Flycatcher, calling it the Coachwhip Flycatcher (*Muscicapa*

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crepitans). Watling wrote: "One half the natural size. Native name *Wan-nang*. This bird, from a single note resembling the crack of a coachman's whip, is called the Coachwhip Flycatcher." Latham however wrote: "Inhabits *New South Wales*; native name *Djon*. It has a long single note, not unlike the crack of a coachman's whip, hence called the *Coachwhip Bird*; it appears a lively species, and menacing in its manners, for erecting the crest, it gains a formidable appearance, which it takes the advantage of in contending with other birds, especially *Parakeets*, about the right of extracting honey from the flowers; it is not a common species." The information here given suggests that Latham was indebted to some one other than Watling for his account of the bird and though the description was imperfect the name was immediately accepted on account of the vernacular name cited. On p. 118 in the same place Latham had described a White-cheeked Crow, writing: "Inhabits *New Holland*, and at first sight seems to resemble somewhat the *White-eared Jay*, but differs in not having the fore-head whitish, nor does the white patch come so near the eye as in that bird; besides, the shape of the tail is cuneiform in the present described, but in the *White-eared Jay* it is simply rounded at the end." This he named *Corvus olivaceus*. When Vigors and Horsfield dealt with the collection of Australian birds in the Linnean Society's Museum they recorded Caley's note: "This bird is more often heard than seen. It inhabits brushes. The loud cracking whip-like noise it makes (from whence the colonists give it the name of *Coachwhip*) may be heard from a great distance" and thereby recognized it as Latham's *Muscicapa crepitans*, but at once provided a new genus for it, *Psophodes*, and the name *Psophodes crepitans* became well-known. Gould in using it wrote Latham's *Corvus olivaceus* as a synonym, overlooking the fact that this name had anteriority and showed a better description.

He gave a good note, writing: "This bird, so renowned for the singularity of its note, is very abundant in many parts of *New South Wales*, to which portion of the Australian continent it appears to be confined. It is to be found only in dense brushes, such as those at Maitland, Manning, Illawarra, and the cedar brushes of the Liverpool Range; in fact, the localities that are suitable to the *Menura* and the Wattled Talegalla are congenial to the habits of the Coachwhip Bird. Its loud full note ending sharply like the cracking of a whip, with which the woods are constantly reverberating, appeared to me to be analogous to the peculiar call of the *Menura*; besides this peculiar whistle, it also gives utterance to a low inward song of considerable melody. It is a shy and recluse species, rarely exposes itself to view, but generally keeps in the midst of the densest foliage and among the thickest climbing plants, frequenting alike those that have intertwined themselves with the branches of the tallest trees and those that form almost impenetrable masses near the ground. It is extremely

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animated and sprightly in all its actions, raising its crest and spreading its tail in the most elegant manner. These actions become even more animated during the spring, when the males may often be seen chasing each other, frequently stopping to pour out their notes with great volubility. The food consists of insects of various kinds, obtained almost entirely from the ground, and sought for by scratching up the leaves and turning over the small stones, precisely after the manner of *Menura superba*."

Mr. Edwin Ashby's notes read: "I was in the Blackall Range, South Queensland, at the end of September and beginning of October 1903, and found this bird very numerous; the wonderful "crack of a coachwhip sound" with which the cock ends his song was one of the commonest sounds of the brush, but the charm of its performance is ever fresh. We then noticed that the coachwhip sound is always preceded by two soft drawn-out whistles and more often than not concluded after a short pause with another note repeated twice sounding like the words "chew, chew," also the two added notes always seemed to come from a few yards away from those first uttered: at first we concluded that it was an example of ventriloquism, but before leaving the locality my companion and myself were able to prove that the final notes were made by the female: we had got two birds between us in a narrow belt of separated bramble bushes; the cock flew across and gave his part of the song, and the mate was a little bit in the rear and finished her two notes before joining the cock; both birds were within a yard or so from both of us and between us so we were able to set the disputed point at rest and demonstrate conclusively that the hen finishes the song of the cock. I am under the impression that we were the first ornithologists to demonstrate this fact conclusively. It is very numerous in the neighbourhood of Evelyn, Victoria, a fairly thickly settled district where the birds were unusually tame. On October 10th, 1910, I took a clutch of freshly-laid eggs; the nest was about four feet from the ground, made of grass and roots, and the parent called my attention to the nest by coming close to me and making a loud scolding noise."

Mr. L. G. Chandler sent me, through the intervention of Mr. F. E. Howe, the following note: "For some time I felt convinced that the female Coachwhip Bird was alone responsible for the curious double note, sounding phonetically like 'whitwee,' that rounds off the 'whipcrack' note of the male like an echo. To-day (February 1st, 1908) I have had evidence that the male *can* and *does*, under certain conditions, give both calls. In company with Mr. Tom Tregellas, I was walking along a road at Olinda, about twenty-six miles from Melbourne, in search of ornithological observations, when the call of the male Coachwhip Bird was heard in some undergrowth to our left and the responding note of the female came from the *other* side of the road to our right. Knowing

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that one or other of the birds would presently cross the road we waited for a glimpse of them. Presently the male was seen poking about near the edge of the scrub, but the bird seeing us became agitated and afraid to venture across the open. Several times he gave the usual note and each time was answered by the female. Occasionally he gave the opening 'swish-like' note that precedes the crack and stopped. In this case no response came from the female. Suddenly we were startled by the male producing an *exact* imitation of the female call after his own note and a second later the mate answered. Three or four times in succession the male gave this call and we distinctly saw the beak open and shut and the throat move on each occasion. Slowly the sprightly form with crest erect edged away through the scrub, and growing bolder as the dividing distance became greater, finally flitted across the road and joined its mate, some twenty yards away."

Mr. F. E. Howe's notes read: "Is plentiful at Ferntree Gully, Victoria. They are very local and can be seen in a certain spot at any time of the year. One who has heard the call will never forget it. The whip-like note is uttered by the male alone, and is nearly always answered by a double 'wee-wit' of the female. This form is a fairly early breeder, and rears two broods, one in September or October, and the other in December or January. The nest, which is very like that of a Thickhead, only much larger, is generally placed in wire-grass or in the native hops (*Goodenia ovata*) and about four feet from the ground. When feeding they utter a peculiar chuckling note."

Mr. L. G. Chandler later wrote: "The clear ringing notes of the *Psophodes* and the sweet 'guinea-a-week' call of the *Pycnoptilus* are pleasant sounds to the bird lover's ears. The thickly timbered gullies with an undergrowth of wire and sword-grass are the favourite resort of both these species and they appear to be very local. When a new nest of *P. olivaceus* is found, you often find the previous season's nest not far away. A tangle of wire-grass is the favoured situation for a nest, and it is rarely placed more than thirty feet from water. The birds are ground feeders, and scratch amongst the decaying debris for their food. When working over the ground both sexes occasionally utter low chuckling notes, apparently evincing satisfaction at some find. The call of the male sounding something like the swish and crack of a whip, is followed on nearly every occasion by the responding call 'whip-ee' of the female. This response from the female follows so quickly on her mate's call, that many people think both notes originate from the throat of one bird. As I have written in a previous note, the male *does* give both calls sometimes, but then I think it is only given under the influence of agitation. When a nest is found containing young, the parents fly around erecting and flattening their crests and uttering notes of anxiety and fear. The usual note then is a repetition

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of 'rep-rep,' and when greatly alarmed—as by a young bird in distress—these notes are changed to 'roup, roup,' issued in a louder key. Before commencing the continued call of 'roup,' and at intervals, two or three exceedingly sweet notes like 'hok hok' are given. The young are very active, and when only half grown will jump out of the nest and hide in the undergrowth. They do not return to the nest again when once they have been disturbed from it. I once came upon a young bird, singing to itself in the seclusion of some thick undergrowth, while the parent was away foraging for food. The old bird would return and feed the young, and on the latter being left alone it would commence singing again. The notes were a little harsh and were given in an undertone. The parent bird was soon on the spot when I endeavoured to get a better view of its offspring, and it was remarkable how the young one managed to evade me. It quickly hid in the dense undergrowth, where it was perfectly safe. All its movements were directed by the old bird, who took all the cover possible while doing so. I think when the young leave the nest, each parent exclusively feeds its own charge, for on most occasions I have noticed the birds with young to be about thirty yards or more apart, each with one young bird."

Mr. H. S. Dove has sent me some interesting notes of the nesting of this species in East Gippsland, Victoria: "Found nest of Whip Bird in Kangaroo Island acacia, *close to road*, along which drays, timber waggons and horsemen passed each day; this is unusual in a species which usually builds in thickets of dense scrub. The nest was four feet from the ground, round, open and shallow, made of twigs and lined with fine grass. On October 13th contained young one a couple of days old, partly covered with blackish down, the head bare, also egg. The female sat quietly while we looked at her from about a yard's distance, whipcrack of male frequently heard not far away, which she does not answer while in the nest until he intimates by intonation that danger is at hand, when she answers and slips away from nest. Next day found that young had been taken in the night, after which nest was deserted. On October 28th another nest, almost certainly built by the same pair, was found in same hedge, but a considerable distance away, and better concealed; round open twig nest but neater than first; the female was sitting on two eggs. On November 15th one young was hatched, blind, fairly well covered with blackish down. Eggs appeared quite fresh when found on 28th October, thus giving about eighteen days' incubation. The female sits tightly now young is hatched until I can almost place my hand. November 19th: The young now making vigorous growth, eyes beginning to open, wing-quills sprouting, as were the quills of single cervical tract forking at upper-breast. Long blackish down still covering head and upper-surface. November 22: Wing-quills

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now quite long, rest of growing plumage quite obscured by dense blackish-brown down; bill of a greyish-brown. On November 26th the young had left the nest. It will be noted that the clutch was *two*, but in each case only one young hatched out."

Croll has recorded: "At the head of a gully on the Blacks' Spur, Healesville, Victoria, I had the pleasure of seeing openly not fewer than eight Coach-whip Birds (*Psophodes crepitans*) in one group, and several of them making the call that gives them their name. Two (presumably males) were fighting fiercely; the others provided an agitated audience. Owing to the fire, there was no cover, and every movement was visible. One fighter pursued the other from branch to branch of the bare saplings, and finally across the road, passing between another member of our party and myself. Their actions were very rapid, but it was possible to note the deep green of the plumage, the white cheek patches and the crest. The birds rested within ten feet of me, and in full view, and one gave the full whip call—the swing of the lash and the crack. Immediately one of the group left on the other side of the road (also in full view) added the jerky call that is sometimes heard from these birds. We stood between the producer of the first call and the producer of the second. I watched the one bird and my friend the other, and we *saw* them produce the notes. Again and again one or other of the birds called, and several times we witnessed the production of the notes. In every instance one bird was responsible for the whole of the call usually associated with the Coachwhip Bird—the lash and the crack—and another gave the rarer following note."

Captain S. A. White, reporting upon the birds of the Bunya Mountains, Queensland, observed: "These familiar scrub-birds were plentiful, as one would expect in all the subtropical scrubs of the coastal belt. Their fine ringing calls and other strange notes greeted us morning and evening. Upon comparison the Bunya Mountains bird seems identical with the Victorian and New South Wales form, while the Mount Tambourine specimens show much more yellow in the green of the back, and the primaries are much browner, those of the former bird being black."

No subspecies were discriminated until North named a form from Boar Pocket, North Queensland, and this is remarkable for the fact that he named it trinomially, probably the only instance in his works. He named it *P. crepitans lateralis*, writing: "Like *Psophodes crepitans* Gould, but differs in having the lateral feathers of the tail, which is shorter, tipped with pale brown instead of white. Moreover, the sides of the lower flanks are olive-green, whilst in *P. crepitans* they are ashy-brown. Total length 9.8 inch; wing 3.9, tail 5.4, bill 0.9, tarsus 1.3."

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Consideration of a fair series in the preparation of my Reference List necessitated the recognition of four subspecies, viz. :

Psophodes olivaceus olivaceus (Latham).

New South Wales.

Psophodes olivaceus scrymgeouri Mathews.

“ Differs from *P. o. olivaceus* in its darker coloration above.”

Gippsland, Victoria.

Psophodes olivaceus sublateralis Mathews.

“ Differs from *P. o. olivaceus* in its smaller wing (91 mm.) and shorter tail. Tweed River, New South Wales.”

New South Wales (Tweed River) and South Queensland.

Psophodes olivaceus lateralis North.

North Queensland.

A little later I received more material and added :

Psophodes olivaceus magnirostris Mathews.

“ Differs from *Psophodes o. olivaceus* in its much larger bill ; the tip of the tail-feathers is white : wing 103 mm., culmen 23.

Rockhampton, Queensland.

These five subspecies can still be recognised and the nomination above given is stable.

Order PASSERIFORMES.

No. 511.

Family CINCLOSOMATIDÆ.

PSOPHODES NIGROGULARIS.

BLACK-THROATED COACHWHIP-BIRD.

(PLATE 431.)

PSOPHODES NIGROGULARIS Gould, Birds Austr., pt. xv., July 1st, 1844: West Australia = King George's Sound.

Psophodes nigrogularis Gould, Birds Austr., pt. xv., (Vol. III., pl. 16), July 1st, 1844; *id.*, Proc. Zool. Soc. (Lond.), 1844, p. 5, July; *id.*, Handb. Birds Austr., Vol. I., p. 314, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878; Sharpe, Cat. Birds Brit Mus., Vol. VII., p. 351, 1883; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 29, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 268, 1901; Milligan, Emu, Vol. II., p. 72, 1902 (S.W.A.); North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 340, 1904; Mathews, Handl. Birds Austral., p. 70, 1908; *id.*, List Birds Austr., p. 201, 1913.

Psophodes olivaceus nigrogularis Mathews, Nov. Zool., Vol. XVIII., p. 334, 1912.

Psophodes nigrogularis pallida Mathews, Austral Avian Record, Vol. III., pt. 3, p. 60, April 7, 1916: South-west Australia = Cape Mentelle.

DISTRIBUTION. South-west Australia. ? Extinct.

Adult male. General colour of the upper-surface bronze olive-green including the hind-neck, sides of neck, sides of face, sides of breast, back, outer aspect of wing and tail; inner webs of flight-quills dark brown; outer tail-feathers sub-apically blackish and tipped with white; crown of head and ear-coverts pale brown; an irregular spot of black below the eye; a white moustachial streak; chin and throat black; middle of breast bronze tinged with grey; middle of abdomen pale grey; sides of body bronze-brown or rust-brown; thighs similar, becoming paler on the vent; under tail-coverts bronze olive-green; under wing-coverts dusky-brown; under-surface of flight-quills greyish-brown; lower aspect of tail similar to its upper-surface but brighter in colour. "Eyes dark brown, feet and bill dark horn." Total length 250 mm.; culmen 18, wing 80, tail 114, tarsus 31. Figured. Collected at Cape Mentelle, South-west Australia, on the 26th of December, 1901.

Adult female. "Similar to the adult male, but having the throat only dull black, and the feathers on the centre of the breast and the abdomen light ashy-brown." (North.)

Immature. "Young birds resemble the adults, but are destitute of the black throat and white cheek-stripe, these parts being ashy-brown slightly tinged with yellowish-olive." (*ib.*)

Nest. "Small saucer-shaped, built of twigs and placed in a low scrubby undergrowth." (*ib.*)

BLACK-THROATED COACHWHIP-BIRD.

Eggs. "Clutch, two. Indistinguishable from some of its larger eastern representative. Bluish-white, with dots, spots, small irregular-shaped blotches and dashes scattered over the shell, but more thickly on the larger end, where some of the marks are confluent and are intermingled with a few underlying streaks and spots of faint bluish-grey." 27-30 mm. by 20." (*ib.*)

Breeding-season. December (*ib.*).

GOULD'S enthusiasm on the receipt of this species may be gauged by his comments: "The addition of a second species to the genus *Psophodes* will be hailed with pleasure by everyone who makes the science of ornithology a matter of study; nor will its discovery be a subject of surprise, as it is only another illustration of that beautiful law of representation which is conspicuously carried out in Australia. The habitat of the present bird will doubtless be hereafter found to be as strictly confined to the western part of the continent as that of the *P. crepitans* is to the eastern. It is to Gilbert's perseverance that science is indebted for the knowledge of this new bird; and his notes respecting it I here transcribe: 'Inhabits thickets of a small species of *Leptospermum* growing among the sandhills which run parallel with and adjacent to the beach. It utters a peculiar harsh and grating song which it is quite impossible to describe, and which is so different from that of every other bird I ever heard or am acquainted with, that I shall have no difficulty in recognising it again whenever I may hear it. I heard it for the first time, together with the notes of many other birds equally strange to me, in the vicinity of the Wongan Hills a few weeks back, but could not then obtain a sight of the bird, although I knew it was only a few yards from me.'"

Milligan's notes read: "The capture of this bird proved to be one of the most interesting incidents of my first trip. It is locally known as the 'Rainbird,' by reason of the fact that immediately preceding rain it seeks the summits of the coast hills, and utters a series of beautiful, clear, liquid, penetrating notes, which are difficult to imitate. It is quite possible that its name is fully justified, for its food consists in part of the land snails which are found on these hill summits, which forms in dry spring weather are apparently lifeless, but when the atmosphere is moist or after a shower of rain are full of vitality and may be found creeping up the stems and branches of the dwarf scrub. Instinct or experience would teach the bird to seek such places for this particular class of food immediately precedent to rain, and, while seeking such, it would naturally utter its notes. The notes of the bird are well known to both the 'blacks' and the old colonists, but both allege the bird has never been seen. That, I think, is probably true, for with the aid of my trained dog and all the bushcraft I could gather, it took me four days of persistent hard work to get a glimpse of one. I have sought and

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secured the Pittas in Queensland, the Lyre Birds in Victoria, as also *Psophodes crepitans* in the latter State, but the securing of specimens of such birds is simple as compared with getting the Black-throated Coachwhip-Bird. As might be expected, the bird is a ground runner, and the difficulty in seeing it is due to such fact, and the additional one that it never leaves the knee-high dwarf scrubs. These scrubs are so thick and strong that in many places I could stand on their even upper surfaces without sinking. The ruse I eventually determined to adopt in securing the bird was, after having located its probable whereabouts (a most difficult task) to fire the cylinder barrel of my gun into the particular place and thus endeavour to cause it to take wing; pursuing such plan, and having located the whereabouts of the bird and fired without flushing it, before I had time to feel disappointment at the failure of my ruse the bird ran across the corner of a small patch of burnt scrub, and snapshooting with my choke barrel, and aided with the best of luck, I stopped my prize. The locating of the bird's whereabouts is a most difficult task, for he is a perfect ventriloquist. Whilst in pursuit of him I have approached stealthily to a place from where his notes appeared to come in the first place—I would then have to await the prolonged repetition of his call. The first notes would appear to come as if the bird were 300 yards away—degree by degree they would come nearer until within a few yards. Suddenly they would appear to the right as if the bird had changed its position—then to the left, and next moment behind me, and usually by the time the call was finished I located the bird (rightly or wrongly) where I first imagined it to be. On my second visit a second specimen was secured after a long chase, but on this occasion there were four persons in pursuit instead of one, and the bird showed less shyness—due, I think, to the immediate presence of its nest or young. Subsequently we found near the locality a vacated grass nest close to the ground, and on examining the lining-feathers we found several feathers resembling in colour and shape those of the bird we had shot.”

Since Milligan's success, although the species has been looked for by more than one clever ornithologist, no one has seen or heard another bird, and it is now regarded as verging on extinction, if not absolutely extinct. As however the Night Parrot (*Geopsittacus occidentalis*) has been recently recorded, after we had given up hope, it may be that this species still persists. As to its systematic history it is as brief as the knowledge of its life history. Apparently Gould's specimens came from the neighbourhood of the Wongan Hills, while Milligan's search was made at the Margaret River and it is from this locality (Bunbury) that eggs have been described.

GENUS—POMATOSTOMUS.

POMATOSTOMUS Cabanis, Mus. Hein, Vol. I., p. 83

(after Oct. 23rd), 1851. Type (by subsequent

designation) Gray 1855 (before Sept.), p. 45 *Pomatorhinus temporalis*
Vigors and Horsfield.

LARGE "Pomatorhine" birds with long curved bills, long rounded wings, long rounded tails of broad feathers and comparatively short stout legs and feet.

The bill is about equal to the head, curved, the culmen arched but the tip sharp, depth at base about one-third the length; the culmen ridge is slightly rounded, the sides strongly laterally compressed, the edges of the mandible arched, agreeing with the curving of the culmen; the nostrils appear as linear openings near the base of the bill, a small operculum being observed, but no nasal groove obvious; the rami of the lower mandible are very short, less than one-third the length of the bill and the gonys is compressed and decurved as the upper mandible.

The wing is long and rounded, the first primary short but a little more than half the length of the third; the second is a little shorter than the seventh, and equals the eighth, which however exceeds the secondaries; the third, fourth, fifth and sixth primaries are subequal and longest.

The tail is long, composed of broad feathers and rounded in shape, just about equal to the length of the wing.

The feet are stout, the legs short and strong; the tarsus is strongly scutate in front, showing five scutes but bilaminate posteriorly; a little longer than the length of the culmen; the middle toe is longest without the claw, longer than the inner and outer toes with claw, the outer longer than the inner, the claws short and sharply curved; the hind-toe long and stout with long claw almost equal to the middle toe and claw.

Order PASSERIFORMES.

No. 512.

Family CINCLOSOMATIDÆ.

POMATOSTOMUS TEMPORALIS.

B A B B L E R .

(PLATE 432.)

POMATORHINUS TEMPORALIS Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 330, Feb. 17, 1827 : Shoalwater Bay, Queensland.

Pomatorhinus temporalis Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 330, 1827 ; Gould, Birds Austr., pt. xvi. (Vol. IV., pl. 20), Sept. 1st, 1844 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 418, 1883 ; Hall, Key Birds Austr., p. 29, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 270, 1901 ; Hill, Emu, Vol. VI., p. 179, 1907 (Vic.) ; Batey, *ib.*, Vol. VII., p. 7, 1907 (Vic.) ; Chisholm, *ib.*, Vol. VIII., p. 36, 1908 (Vic.) ; Macgillivray, *ib.*, Vol. XVII., p. 201, 1918 (N.Q.).

Pomatorhinus trivirgatus Temminck and Laugier, Plan. Color d'Ois, 75e livr., Vol. IV., pl. 443, Jan. 5, 1828 : Blue Mountains, New South Wales.

Pomatorhinus rubeculus Gould, Proc. Zool. Soc. (Lond.), 1839, p. 144, March 1840 : N.W. Coast Australia=Port Essington, Northern Territory ; *id.*, Birds Austr., pt. xxx., (Vol. IV., pl. 21), March 1st, 1848 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 421, 1883 ; Hall, Key Birds Austr., p. 29, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 274, 1901 ; Hartert, Nov. Zool., Vol. XVI., p. 225, 1905 (N.W.A.) ; Mathews, Handl. Birds Austral., p. 71, 1908 ; Whitlock, Emu, Vol. VIII., p. 181, 1908 (W.A.) ; Ogilvie-Grant, Ibis, 1909, p. 682 ; Barnard, *ib.*, Vol. XI., p. 26, 1911 (N.Q.) ; Witmer Stone, Austral Av. Rec., Vol. I., p. 162, 1913 ; H. L. White, Emu, Vol. XVI., p. 224, 1917 (N.T.)

Pomatostomus temporalis Cabanis, Mus. Hein, Vol. I., p. 83, 1851 ; Gould, Handb. Birds Austr., Vol. I., p. 479, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878 ; *id.*, Tab. List Austr. Birds, p. 12, 1888 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 358, 1904.

Pomatostomus rubeculus Cabanis, Mus. Hein, Vol. I., p. 83, note, 1851 ; Gould, Handb. Birds Austr., Vol. I., p. 481, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878 ; *id.*, *ib.*, 2nd Ser., Vol. I., p. 1,088, 1887 ; *id.*, Tab. List Austr. Birds, p. 12, 1888 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 361, 1904.

Pomatorhinus frivolus (*nec* Latham) Sharpe, Hist. Coll. Brit. Mus. Nat. Hist., Vol. II., p. 137, 1906 ; Mathews, Handl. Birds Austral., p. 70, 1908 ; Cleland, Emu, Vol. XI., p. 85, 1911 (Ford).



H. Grönvold, del.

Witherby & C^o

POMATOSTOMUS TEMPORALIS
(AUSTRALIAN BABBLER).

BABBLER.

Pomatorhinus temporalis temporalis Mathews, Nov. Zool., Vol. XVIII., p. 334, Jan. 31, 1912.

Pomatorhinus temporalis trivirgatus Mathews, *ib.*

Pomatorhinus temporalis tregellasi Mathews, *ib.*: Frankston, Victoria; *id.*, Austr. Av. Rec., Vol. I., p. 58, 1912; Belcher, Birds Geelong, p. 253, 1914.

Pomatorhinus temporalis cornwalli Mathews, *ib.*, p. 335, 1912: Cairns, North Queensland.

Pomatorhinus temporalis rubeculus Mathews, *ib.*

Pomatorhinus temporalis nigrescens Mathews, *ib.*: Strelley River, North-west Australia; *id.*, Austr. Av. Rec., Vol. I., p. 58, 1912; *id.*, South Austr. Ornith., Vol. III., p. 139, 1918; Söderberg, Kungl. Svenska Vetensk. Handl., Bd. 52, p. 92, 1918.

Pomatorhinus temporalis intermedius Mathews, Nov. Zool., Vol. XVIII., p. 335, Jan. 31, 1912: Alexandra, Northern Territory.

Pomatorhinus temporalis bamba Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 43, April 2, 1912: Melville Island, N.T.

Pomatostomus temporalis temporalis Mathews, List Birds Austr., p. 201, 1913.

Pomatostomus temporalis trivirgatus Mathews, *ib.*

Pomatostomus temporalis tregellasi Mathews, *ib.*

Pomatostomus temporalis cornwalli Mathews, *ib.*

Pomatostomus temporalis intermedius Mathews, *ib.*, p. 202.

Pomatostomus temporalis rubeculus Mathews, *ib.*; *id.*, Ibis, 1914, p. 123; Carter, Ibis, 1921, p. 55.

Pomatostomus temporalis nigrescens Mathews, List Birds Austr., p. 202, 1913.

Pomatostomus intermedius Macgillivray, Emu, Vol. XIII., p. 170, 1914 (N.Q.).

DISTRIBUTION. Australia, save South and South-west Australia. Not Tasmania.

Adult male. Fore-part of head, middle of crown, ear-coverts, hind-neck, and sides of neck ash-grey; a broad line on each side of the crown, from the base of the fore-head to the sides of the nape, cream-white like the throat, fore-neck and upper-breast; lores, eyelids, feathers below the eye, which extend on to the sides of the neck, blackish; upper-back, scapulars, and upper wing-coverts greyish-brown, becoming dusky-brown on the lower back; greater upper wing-coverts, primary-coverts, outer webs and tips of flight-quills blackish-brown, inner webs of flight-quills for the greater part cinnamon-rufous; upper tail-coverts and tail-feathers black with broad white tips to the latter; lower breast and abdomen rust-brown; sides of body, thighs, axillaries, and under wing-coverts dusky brown; under tail-coverts blackish fringed with grey at the tips; lower aspect of tail similar to its upper-surface; under-surface of flight-quills hair-brown, the middle portion pale cinnamon-rufous. Bill black with base of culmen and base of lower mandible greyish-white. Eyes grey, feet black. Total length 260 mm.; culmen 28, wing 121, tail 123, tarsus 34. Figured. Collected at Frankston, Victoria, on the 20th of March, 1908, and is the type of *P. t. tregellasi* Mathews.

Adult female. From the same locality similar.

Adult male. Fore-part of head, sides of crown and sides of nape cream-white; middle of crown, hind-neck, and sides of neck hoary-grey; back dark brown with an olive tinge; upper wing-coverts dark brown; flight-quills dark brown on the outer webs becoming darker and uniform on both webs, inner webs of primaries cinnamon; rump and upper tail-coverts blackish; tail-feathers black with broad white tips;

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lores, feathers round the eye, and ear-coverts blackish; throat and lower cheeks white; fore-neck, breast, and middle of abdomen chestnut; sides of body, thighs, vent and under tail-coverts dark dusky-brown; axillaries and under wing-coverts rust-brown; under-surface of flight-quills cinnamon for the greater part, the remainder hair-brown; lower aspect of tail similar to its upper-surface. Eyes brown, feet and tarsi dull black. Bill, upper mandible tip and tomium of lower mandible black; basal half of culmen greyish-white, balance of lower mandible fleshy-white. Total length 250 mm.; culmen 27, wing 107, tail 105, tarsus 31. Figured. Collected at Point Torment, West Kimberley, North-west Australia, on the 11th of February, 1911.

Adult female. From the same locality similar.

Fledgeling. Crown of head, back, wings and tail dark smoke-brown with paler edges to some of the upper wing-coverts and flight-quills, tips of outer tail-feathers broadly marked with cream-white; a line of cream-white from the nostrils, above the lores, over the eye and along the sides of the crown; throat, breast, and abdomen cream-buff; thighs and under tail-coverts smoke-brown; lower aspect of tail similar to its upper-surface. Eyes deep brown, bill dark horn, base of lower mandible yellow, feet and legs light grey. Collected in East Murchison on the 30th September, 1909.

Nest. Dome-shaped, constructed of twigs roughly put together, then a layer of paper-bark and grass; lined with very fine soft shreds of paper-bark in which the eggs were buried. Entrance in the outer end of the nest (which was placed in a fork at the end of a thin limb) and was hooded over with twigs and grass. Outside measurements 14 inches long by 13 wide and 14 deep. Inside 6 by 5 by 4 inches. The hood was 9 inches long, which made the nest 23 inches over all. (In Victoria the subspecies sometimes lines its nest with horse-dung.)

Eggs. Clutch 3. Ground-colour dark, covered all over with hair-like markings of dark brown. 27-30 mm. by 19-20.

Breeding-season. August to December.

GOULD wrote: "This species inhabits New South Wales, particularly those districts where *Angophoræ* and *Eucalypti* abound; it is gregarious in its habits, and is exceedingly noisy and garrulous. Commencing with the branches nearest the ground, it gradually ascends, in a succession of leaps, to the very tops of the trees, whence, with elevated tail, it peers down, and continually utters its peculiar chattering cry; it is frequently to be seen on the ground, but on the slightest alarm it resorts to the trees, and ascends them in the manner described. Its powers of flight are not very great, and appear to be only employed to convey it from the top of one tree to another, the whole troop following one after the other. The situation of the nest is somewhat varied; on the *Eucalypti* it is mostly built at the extremity of the branch; it is of a large size, and very much resembles that of the Magpie of Europe, being of a completely domed form, outwardly composed of small long twigs about the size of a thorn, crossing each other, and but very slightly interwoven; the entrance is in the form of a spout, about half the length of a man's arm, and the twigs are placed in such a manner that the points incline

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towards each other, rendering it apparently impossible for the bird to enter without breaking them, while egress, on the other hand, is very easy; the nest has a thick inner lining of the fine inner bark of trees and fine grasses. In traversing the pasture-lands at Camden, any part of the Upper Hunter district, and some portions of the Liverpool Plains, the attention of the traveller is often attracted by the large nest of this bird; three or four are often to be seen on the same tree. The food consists of insects of various kinds."

Mr. Thos. P. Austin has sent me the following account from Cobbora, New South Wales: "One of the common birds of the district, and is to be met with almost everywhere, but having a preference for the more open forests rather than the thick scrubs. Known locally by such names as Chatterer, Pine Pigeon, Parson Bird, and Twelve Apostles, the origination of which all have some foundation. It is usually met with feeding upon the ground, in small flocks of from eight to a dozen. When disturbed they quickly fly on to the lower branches of the nearest tree, and hop from limb to limb, gradually getting higher and higher, until well up in the tree, chattering the while; then one by one they fly off to a neighbouring tree, and go through exactly the same performance again. They obtain their food upon the ground, hopping about in all directions, and with their bill turn over every small bit of bark, stick, or horse and cow-dung, in fact everything they come across under which might be some insect. Their flight is very direct and rather rapid, with quick fluttering motions of the wings and tail outspread. It would be quite impossible to describe in words their peculiar notes, of which they have a fair variety, but their principal loud whistling song is most noticeable, of which I have taken particular notice for some years, and am now fully of the opinion that it is not uttered by only one bird. The way in which two or more of these birds will blend their song into exactly the same tune every time is very remarkable. There has been a flock of them about my house ever since I first came here fifteen years ago, and I have had splendid opportunities of studying them in every way. Much mystery has existed with regard to their nesting-habits. I have often seen a dozen or more of their nests within an area of a hundred yards square; they are usually placed low down, either at the extremity of a long horizontal branch, or a young upright pine tree or a sapling, a bulky dome-shaped structure, with a spoutlike entrance near the top, facing away from the tree, formed of sticks and twigs, the spout being constructed of extra long ones, with all the thin ends pointing outwards, and in some instances the entrance appears to be closed, lined with a thick bed of dry bark of a soft nature, dry broken-up horse and cow dung, finally finished with wool and fur if available. A whole flock co-operate in building a nest; many are built at all times of the year, but a very small percentage

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of them are laid in; in cold weather they use one of the newer nests for roosting in at night, and I have often flushed as many as half a dozen birds from a nest just about dusk. In this district two or three eggs form a full clutch, as of fifteen nests I have examined with complete clutches (incubated) six contained two, seven contained three, and two contained five, but in my collection I have a clutch of seven taken by a friend in the Armatree district, New South Wales, on Sept. 4, 1909, but in this case, from the appearance of the eggs, I should say were undoubtedly laid by two females. I have found nests containing eggs from the last week in August till the first week in November."

Mr. Edwin Ashby states: "The only place in South Australia where I have met with this species is at Rendlesham in the south-east. In March 1907 I found them very common in the neighbourhood of Yass, New South Wales, not far from the site of the future capital of Australia."

Mr. L. G. Chandler's notes read: "On October 4th, 1908, at Franklin, Victoria, I found two nests with two and three eggs respectively. My companion and myself climbed to several dozen new-looking nests without result. At one spot twelve nests could be seen in four trees. They were built on an average about ten feet from the ground. The birds are plentiful at Frankston, and do invaluable work for the orchardists there by destroying injurious insects. I have watched them working systematically through an orchard."

Mr. F. E. Howe has sent me the following note: "At Parwon, Victoria, this is a common bird, and in some parts the trees are full of their large stick-nests. I have often seen the nests placed quite within reach of the ground, but the rule in this locality appears to be to place them at the extremity of a long thin bough and at heights varying from twenty to thirty-five or forty feet. The eggs vary in number from two or three to seven and sometimes more. I have often noticed young just hatched out and accompanied by eggs. On one occasion I saw two young and four eggs in a nest, one egg was nearly incubated and the other three were fresh. This I think was evidence that two females laid in that particular nest. I have often flushed the birds (generally two) from the nests, and on climbing up have found it empty. This was in the breeding-season, in the months of September and October. The call of this bird sounds something like 'Yahu-Yahou,' uttered three or four times, and when seen hopping from limb to limb up a tree they utter chattering notes. They assemble in small families of five or six, and when flying to cover or from tree to tree it is a case of 'follow my leader.' They obtain the food mostly from the ground, but I have often noticed them taking food from the leaves and in the crevices of the bark along the more slender limbs of the sheoks, a tree they appear particularly fond of."

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Mr. J. W. Mellor writes: "I saw these birds along the Coorong, towards Kingston in South Australia, in October 1897, and on the 9th I shot a pair for identification, as I had not previously seen them here, and I have not seen them beyond the south-eastern part of this State; they are much larger than the common species (*P. superciliosus*) which is in evidence nearly everywhere, and on the occasion above noted were in company with these and other birds."

Chisholm has given a concrete example of the usefulness of this species, sometimes known as the Codlin-Moth Eater, writing: "As a practical illustration of its value I may mention a case that came under my notice recently. A grub, light green in colour, and varying in size from half an inch to an inch and a half long (probably the larva of the *Agrotis* moth) was attacking my rhubarb plants in great numbers, and bade fair to ruin the whole of the plants, when my friends the Babblers took part. The grubs did not come out during the day, but hid in the soft earth at the foot of the plant, only coming out to feed when the night fell. This fact did not deter the Babblers in the slightest degree. As soon as they located the grubs the birds arrived in dozens, and all day long were to be seen digging and pecking with great vigour all around the plants. In a very short time, where formerly there were hundreds, there was not a single grub pest left--vanquished by my inexpensive allies."

Cleland, recording his census of the birds of the Pilliga Scrub, New South Wales, wrote: "Uniformly distributed throughout the journey, 97 being counted, giving an estimated minimum population of 6,422. The numbers seen in 'families' were as follows: Nine on one occasion, 8 on one, 7 on two, 6 on one, 5 on four, 4 on three, 3 on six, 2 on three, and 1 on four occasions."

Söderberg has written: "This Babbler was common both at Mowla Downs, Derby, Meda, Beagle Bay (Dampier land), etc., but was absent at Sunday Island. The birds always lived in small colonies. The nests were built out in the leafage either alone or several in the same tree, chiefly in smaller trees. On the 11th of July I observed a rather peculiar habit in the bird which ought to be mentioned here: Five birds were busy building the same nest. At first I only saw two at the nest, but a minute after a third one arrived, carrying a lot of grass-stalks in its bill. Both the birds flew down to the ground, where they collected an equal amount of material. They returned to the nest, and now I saw all three jumping in and out of it, adding to it. Two more birds came and acted in much the same way. One of the birds was specially occupied in building on the outside of the nest. So they went on for about a quarter of an hour, after which they suddenly came together and then dispersed in different directions. For about ten

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minutes I could neither see them nor hear a sound of the various cries they had uttered before. They remained silent and concealed in the leafage of the trees after having hopped about before without the very least fear. The motive for their procedure I could not find out. When they appeared again at the nest, they stopped building and, gathering in a body, they marched away into the bush a minute after. This joint action is evidently an expression of a rather intimate social union. On another occasion I shot one of the company, upon which the others flew down to the ground and jumped round their comrade, crying loudly. In the middle of December there were two eggs in the nest at Mowla Downs."

Most of the northern and all the north-western forms have been recorded under the specific name *rubeculus*, some of the latest writers using later differential names, which I discuss hereafter, but the preceding note and most of the succeeding notes refer to the darker and smaller forms.

Of the form he regarded as a distinct species under the name *P. rubeculus* Gould observed: "This bird is rather numerously dispersed over the northern parts of Australia, where it takes the place of the *P. temporalis* of New South Wales, from which it differs but little either in size or colouring; its slightly smaller dimensions and the red hue of the breast are, however, characteristics by which it may at all times be distinguished from its prototype. On the Cobourg Peninsula it inhabits the open parts of the country, and when disturbed takes to the higher branches of the gums, first mounting upon one of the lower boughs, and then, by a succession of hops and leaps, ascending to the top. In its actions and economy it very closely assimilates to the other species of the genus, being, like them, a noisy and restless bird; and feeding on insects, which are frequently sought for on the ground under the canopy of the larger trees."

Mr. J. P. Rogers wrote me: "Up to the 28th of May, 1911, several small flocks were seen at Marngle Creek, but they were not nearly so numerous as on the Fitzroy River where this species is very numerous. None were seen at Mungi Rockhole, but on the 7th of July about eight miles to the north-east a party of four were seen; these were within two or three miles of Jegurra Creek.

Along this creek these birds are fairly numerous, in fact, are numerous in all parts of West Kimberley I have visited except Marngle Creek and Mungi Rockhole. Their large nests are a very noticeable feature where the birds are numerous, and no nests were seen at Mungi. On Melville Island at Coppers Camp on Nov. 20, 1911, these birds were fairly numerous in the forest country and had bred recently, as on Nov. 7 two young were secured. At the north side they were not so numerous on Jan. 13, 1912, but on the south side on Feb. 5 they were still numerous."

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Mr. Tom Carter's notes read: "The Red-breasted Babbler was *not* given as occurring in mid-West Australia in your Reference List in 1912. I have not seen them on the Lower Gascoyne River, but they are not uncommon on the Minilya River, about eighty miles further north, and the Lyndon River, twenty-five miles north of it. They seem to be local in their habits, and for twenty-eight years I have noticed that certain patches of scrub are always occupied by a family party of these birds. They are locally known as Cat Birds from their peculiar mewling notes, which are constantly uttered by a party of these birds, and every now and again they will all run close together and raise a chorus of these cries, with tail outspread. Why they do this I do not know, but often thought it was because one of these birds had got an extra large grub or beetle, and the others wanted to share it. They appear to breed in small colonies, their bulky nests (as large as Crows' nests) being usually built high up in the small upper branches of white gum trees about the river banks, and very difficult and dangerous to reach. It is a curious and interesting sight to see a party of these birds rapidly ascending the trunk of one of these trees, one following the other in a series of quick upward jumps. They feed mostly on the thick wattle and other scrub growing about the river banks, and on the ground beneath."

Under the name *P. rubeculus*, Capt. S. A. White has written: "Met with these birds in and around the MacDonnell Ranges; they were nesting in the tall gums along the creek, the nests being the same shape and material as those of the more common species further south, but larger."

Mr. Edwin Ashby also remarks: "I had overlooked that you included *P. rubeculus* under *P. temporalis*. I am inclined to think that it deserves full specific rank. Mr. J. R. B. Love sent me skins from the Finke River, Northern Territory, collected in February 1913; they are smaller, darker, and more white on crown than specimens from further west. I think the locality is on the Northern Territory side of the border."

Under the name *Pomatorhinus rubeculus*, Whitlock recorded from the Pilbana Goldfield, Western Australia: "Native name Ca-cac-co. These vivacious and noisy birds haunt the cajaput thickets of both the de Grey and Coongan, and their bulky nests are conspicuous objects in such localities. Often five or more nests will be seen in the same tree."

Barnard wrote from Cape York: "*P. rubeculus* was observed in small flocks in forest country. A number of old nests seen."

Macgillivray wrote: "Small flocks of the Northern Babbler were several times noted in open forest on the Claudie. Scattered parties were noted by Mr. McLennan in open forest on the Archer River."

The technical history of this species is simple but very interesting.

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Simultaneously with its description by Vigors and Horsfield from a specimen from Shoalwater Bay, Queensland, it was beautifully figured by Temminck and Laugier in the Planch. Coloriées from the Blue Mountains, New South Wales ; Temminck's plate appeared a little later than Vigors and Horsfield's description, but a similar bird had been previously figured by the same authors with the same locality, but although this species (*P. turdinus*) is structurally very like the species now treated the coloration is a little different and no specimen agreeing with this has yet been seen.

The recognisable figure by Temminck and Laugier under the name *P. trivirgatus* was at once synonymised with Vigors and Horsfield's name, and all birds from Eastern Australia were recorded as the latter species.

Upon the receipt of birds from North-west Australia, however, Gould noted the striking differences, and described the Northern bird as a distinct species under the name *P. rubeculus*. This was easily recognisable, being smaller and darker and two species were continuously admitted until 1912, when I prepared my Reference List. The large series studied proved that these were only subspecifically separable, intergradation being absolutely seen through long graduated series and that many valid subspecies were easily determinable, some more marked than the previously distinct species *rubeculus*. As a matter of fact, it was the recognition of these very distinct forms that had allowed the continual usage of *rubeculus*, typical *rubeculus* being practically unknown save from Gould's figure and an odd specimen or two.

I therefore determined seven subspecies as follows :—

Pomatorhinus temporalis temporalis Vigors and Horsfield.

Mid-Queensland.

Pomatorhinus temporalis trivirgatus Temminck and Laugier.

New South Wales.

“ A little darker than the former and larger.”

Pomatorhinus temporalis tregellasi Mathews.

Victoria (type locality) and South Australia.

“ Differs from *P. t. trivirgatus* in its darker coloration underneath, and in having a shorter bill, though equally as long a wing measurement.”

Pomatorhinus temporalis cornwalli Mathews.

Cairns, North Queensland.

“ Differs from *P. t. temporalis* in its much paler coloration above and below.”

Pomatorhinus temporalis rubeculus Gould.

Western Northern Territory.

The dark well-known form, smaller, and dark on the back and deeper coloured below.

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Pomatorhinus temporalis nigrescens Mathews.

North-west Australia.

“Differs from *P. t. rubeculus* in its much darker coloration above, especially on the mantle, and also below, the abdomen being very dark reddish.” This was the *P. rubeculus* of most writers.

Pomatorhinus temporalis intermedius Mathews.

Eastern Northern Territory.

“Intermediate between *P. t. temporalis* and *P. t. rubeculus*, having the upper coloration of the former combined with the underside coloration of the latter, but of a lighter shade.”

I later received birds from Melville Island which I named :—

Pomatorhinus temporalis bamba Mathews.

“Differs from *P. t. intermedius* in having lighter ear-coverts, rump and wings.”

In my List 1913 I recognised the genus name *Pomatostomus* as the valid one for this series, and at the same time listed seven subspecies, regarding the Melville Island form as the same as the mainland *rubeculus* until series of the latter could be examined. At the present time I would admit the eight with their names thus (with the proviso that more may be later recognised) :—

Pomatostomus temporalis temporalis (Vigors and Horsfield).

Pomatostomus temporalis trivirgatus (Temminck and Laugier).

Pomatostomus temporalis tregellasi (Mathews).

Pomatostomus temporalis cornwalli (Mathews).

Pomatostomus temporalis rubeculus (Gould).

Pomatostomus temporalis bamba (Mathews).

Pomatostomus temporalis nigrescens (Mathews).

Pomatostomus temporalis intermedius (Mathews).

A note regarding the usage of the name *Pomatorhinus frivolus* must be here given. When Sharpe examined the “Watling” drawings he concluded that *Turdus frivolus* Latham should be used, and on his authority I introduced this identification into Australian literature. Independent consideration convinced me of the impropriety of the association and I at once corrected my error, pointing out that the description disagreed and that practically the only point of similarity was the curved bill. I have had a figure prepared for the Austral Avian Record of *Turdus frivolus* Latham for comparison.

GENUS—MORGANORNIS.

MORGANORNIS Mathews, Austral Av. Record,
Vol. I., pt. 5, p. 112, Dec. 24, 1912. Type
(by original designation) *Pomatorhinus superciliosus*
Vigors and Horsfield.

WHEN I separated this genus I wrote: "Differs from *Pomatostomus* in its proportionately longer bill though shorter wing and weaker feet; in the wing the first and second primaries are proportionately shorter than in that genus."

The birds of this genus are smaller with longer, more slender bills, more steeply curved and still more compressed laterally.

The wings are still more rounded, the third to the ninth primaries sub-equal and longest and the secondaries longer than the second primary.

They show a peculiar relationship to the former, as they are more restricted to the south yet do not enter Tasmania, while one species is restricted to the adjoining inland parts of Queensland, New South Wales, Victoria and South Australia, but does not appear to extend across to the west. The other is quite southern, ranging plenteously from east to west, but still not exactly a coastal bird.



H. Gronvold del.

Witherby & Co.

MORGANORNIS SUPERCILIOSUS
(WHITE-BROWED BABBLER)

POMATOSTOMUS RUFICEPS
(CHESTNUT-CROWNED BABBLER)

MORGANORNIS SUPERCILIOSUS.

WHITE-BROWED BABBLER.

(PLATE 433, upper figure.)

POMATORHINUS SUPERCILIOSUS Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 330, Feb. 17, 1827: South Australia.

Pomatorhinus superciliosus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 330, 1827; Gould, Birds Austr., pt. xvi. (Vol. IV., pl. 22), Sept. 1st. 1844; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 419, 1883; Hall, Key Birds Austr., p. 29, 1899; *id.*, Vict. Nat., Vol. XVI., p. 89, 1899; Campbell, Nests and Eggs, Austr. Birds, Vol. I., p. 272, 1901; Milligan, Emu, Vol. III., p. 17, 1903 (S.W.A.); Hill, *ib.*, Vol. VI., p. 179, 1907 (Vic.); Mathews, Handl. Birds Austral., p. 71, 1908; Howe, Emu, Vol. VIII., p. 132, 1908 (Vic.); Ogilvie-Grant, Ibis, 1909, p. 681 (W.A.); Hall, Emu, Vol. IX., p. 128, 1910 (Eyre's Peninsula); Whitlock *ib.*, p. 197 (W.A.); Cleland, *ib.*, Vol. XI., p. 85, 1911 (Ford); Wilson, *ib.*, Vol. XII., p. 35, 1912 (Vic.); S. A. White, *ib.*, Vol. XIII., p. 26, 1913 (S.A.); Cleland, *ib.*, Vol. XVIII., p. 280, 1919 (N.S.W.).

Pomatostomus superciliosus Cabanis, Mus. Hein, Vol. I., p. 84, 1851; Gould, Handb. Birds Austr., Vol. I., p. 482, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. I., p. 188, 1878; *id.*, Tab. List Birds Austr., p. 12, 1888; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 362, 1904; Ashby, Emu, Vol. XVI., p. 193, 1917 (S.A.); *id.*, *ib.*, Vol. XVII., p. 237, 1918 (S.A.); Whitlock, *ib.*, Vol. XX., p. 179, 1921 (W.A.).

Pomatorhinus superciliosus ashbyi Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 87, April 27, 1911: Broome Hill, South-west Australia; *id.*, Austr. Av. Rec., Vol. I., p. 58, 1912.

Pomatorhinus superciliosus superciliosus Mathews, Nov. Zool., Vol. XVIII., p. 335, Jan. 31, 1912.

Pomatorhinus superciliosus gilgandra Mathews, *ib.*, p. 336 (Gilgandra) North New South Wales.

Pomatorhinus superciliosus ashbyi Mathews, *ib.*

Pomatorhinus superciliosus gwendolene Mathews, *ib.*, Carnarvon, West Australia.

Morganornis superciliosus superciliosus Mathews, List Birds Austr., p. 202, 1913; S. A. White, Emu, Vol. XIV., p. 188, 1915 (Cent. A.); *id.*, *ib.*, Vol. XV., p. 160, 1916 (Cent. A.); *id.*, *ib.*, Vol. XVIII., p. 21, 1918 (S.A.); *id.*, *ib.*, p. 197, 1919 (S.A.).

Morganornis superciliosus gilgandra Mathews, List Birds Austr., p. 202, 1913.

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Morganornis superciliosus ashbyi Mathews, *ib.*; Carter, Ibis, 1921, p. 55 (W.A.).

Morganornis superciliosus gwendolenæ Mathews, List Birds Austr., p. 202, 1913; Carter, Ibis, 1921, p. 55 (W.A.).

Morganornis superciliosus subsp. Carter, Ibis, 1917, p. 585 (W.A.).

DISTRIBUTION. New South Wales; Victoria; South Australia; West Australia.

Adult male. Crown of head and nape dark brown with slightly paler margins to the feathers and a bronzy tinge; sides of neck, back, upper tail-coverts, and upper wing-coverts greyish-brown; bastard-wing, primary-coverts dark brown in contrast to the back; central tail-feathers blackish-brown, the outer ones black tipped with white—more extensively towards the outermost; sides of face dark brown; a supraloral streak of white which extends over the eye and along the sides of the crown to the sides of the nape; lores black; chin, throat, and middle of the breast white; sides of the body, thighs, under tail-coverts, axillaries, and under wing-coverts dusky-brown; under-surface of flight-quills greyish-brown; lower aspect of tail black tipped with white. Bill black, lower base horn; eyes dark; feet black. Total length 210 mm.; culmen 24, wing 88, tail 84, tarsus 27. Figured. Collected at Mount Lofty, South Australia, on the 12th of August, 1912.

Adult female. Similar to the adult male.

Immature female. Crown of the head, sides of the face, hind-neck, entire back, and wings smoke-brown, somewhat darker on the inner webs of the flight-quills; tail blackish, the outer feathers tipped with white, which increases in extent towards the outermost; lores buffy-white; a broad line of white from above the eye along the sides of the crown; throat, fore-neck and breast white; abdomen, sides of the body, thighs, and under tail-coverts smoke-brown; under-surface of flight-quills similar; lower aspect of tail blackish tipped with white. Eyes bluish; feet slatey-grey. Bill slate. Collected at Moorilyan Native Well, South Australia, on the 16th of July, 1914.

Male fledgeling. General colour of the upper-surface dark earth-brown, including the top of the head, sides of the face, back, wings, and tail; bastard-wing margined with buffy-white; inner-webs of flight-quills darker than the back with cinnamon-buff margins on the basal portion; tail-feathers darker than the back, the outer ones broadly tipped with white; lores blackish at the base with buff tips; a broad buffy-white superciliary streak which extends along the sides of the crown on to the sides of the neck; chin and throat white becoming buff on the fore-neck and breast and deepening in colour on the abdomen, sides of the body, and under tail-coverts; thighs dusky; under wing-coverts similar to the breast; under-surface of flight-quills hair-brown with buff edgings to the feathers; lower aspect of tail dark brown at the base and white at the tip. Eyes deep brown, bill dark horn, tip pale, feet and legs pale lead-grey. Collected at Waraya, Yalgoo Gold Fields, West Australia, on the 30th of August, 1903.

Nest. Dome-shaped, with side entrance. Composed of sticks or twigs, and lined with grass, wool or other available material. Outside measurements 10 by 12 inches.

Eggs. Clutch, three. Ground-colour brown covered all over with hair-like markings of darker brown, 23 mm. by 17.

Breeding-season. May to December.

MR. ROBERT BROWN, the famous botanist, was the first to bring to England this species, which he procured on the South Coast of New Holland in 1802.

WHITE-BROWED BABBLER.

He presented specimens of his captures to the British Museum, where they remained ignored for many years, and others to the Linnean Society, where they likewise remained unexamined for a long time. In 1826-7, however, Vigors and Horsfield published an account of the Australian birds in the collection of the latter Society, and at that late date characterised many of the species as new. This fine form was one of them, and they referred it to the Javan genus *Pomatorhinus* just previously characterised by Horsfield but with note of the differences observed. No note was given of its habits, so that Gould's observations were the first published as here reproduced: "This species ranges over the whole of the southern portion of the continent of Australia, where it must be regarded as a bird peculiar to the interior rather than as an inhabitant of the districts near the coast. It is common on the Liverpool Plains, and it was particularly noticed by my friend, Captain Sturt, during his expedition to the Darling. I myself met with it near the bend of the River Murray, and it has also been found in the York district of Western Australia, but I have never heard of its having been seen either in the north or north-western parts of the country. It usually moves about in small troops of from six to ten in number, and is without exception the most restless, noisy, querulous bird I ever observed. Its mode of progression among the branches of the trees is no less singular than is its voice different from that of other birds; it runs up and down the branches of the smaller trees with great rapidity and with the tail very much spread and raised above the level of the back. It usually feeds upon the ground under the Banksias and other low trees, but upon the least intrusion flits on to the lowest branch, and by a running or leaping motion quickly ascends to the highest, when it flies off to the next tree, uttering at the same time a jarring, chattering and discordant jumble of notes, which are sometimes preceded by a rapidly repeated shrill, piping whistle. When a troop are engaged in ascending the branches, which they usually do in line, they have a singular habit of suddenly assembling in a cluster, spreading their tails and wings, and puffing out their plumage until they resemble a great ball of feathers."

Captain S. A. White has written me: "This bird is found practically all over the State, and is without doubt one of our most useful birds, being on the search for insects all the day long, turning over bark and stones, dry manure, etc., with great skill. They rid the orchards of many codlin-moth grubs. Very sociable, even in nesting-time they seem to live in families, and at other times move about in parties of five to twenty. They build a great many nests and, strange to say, lay in very few of them; it is a common sight to see four or five birds come out of a nest which they seem to occupy at night time. The nests are large and dome-shaped, constructed of sticks and lined very warmly

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with feathers, and eggs vary from one to five. These birds have developed a habit of attacking the imported House-Sparrows' nests, pulling out the young ones and destroying the nests ; this is rendering a great service to the country, seeing that the imported Sparrows are such a pest. They have a great range of notes, long-drawn whistles, scolding call like a cat, chattering, etc."

Mr. Edwin Ashby's notes read : "Very common in the great belt of Mallee between the River Murray and the Victorian Border ; also very numerous on the lower parts of the Mount Lofty Range and Yorke's Peninsula. I also met with it at a place called Callion not far from Coolgardie, West Australia. This species is one of the most interesting and valuable of our feathered friends ; in my garden at Blackwood mobs of something like a dozen (which suggests the name of 'The Twelve Apostles,' by which they are often known) work together, moving with rapid hops from bush to bush and bed to bed, turning over the leaves, sticks, etc., often throwing them a foot or more, digging away for insects with their sharp beaks in the soft soil under the *débris* for worms and insects. Their motions are restless in the extreme, keeping up an incessant chatter interspersed with frequent scolding notes. They never stay long enough to clear up the insect pests at one place, for if one bird is a little in front of the others those behind leave whatever they are working on directly the foremost bird is on good spoil. If possible they hop from clump to clump in huge hops which has earned for them another name, 'The Kangaroo Bird.' When a flock moves from one She-Oak to another they usually alight some yard or so from the trunk, hop, as described, to the base, and then commence mounting the boughs in a kind of spiral, a sort of follow-my-leader method."

Mr. Tom Carter has sent me the following note : "The Carnarvon Babbler is very common in the Gascoyne and other districts of mid-West Australia, in all the thickets, and dense scrub about the beds of the large rivers. They were never seen at Point Cloates, owing to the scarcity of scrub, but were to be seen about thirty miles inland from there where the usual inland vegetation prevails. They are very active, garrulous birds, going about in family (?) parties of five or six, feeding on the ground (where they progress with rapid hops) or in the bushes. They do not seem to feed in trees or at any great distance from the ground. The nests are made of twigs, lined with grass and roots, and are very bulky for the size of the birds. They are usually dome-shaped with entrance near the summit. The breeding-season varies as to how rain falls or not, but July to September are the main months. Clutch of eggs three to four. September 23, 1913 : Nest with three fresh eggs at Carnarvon. Sept. 19, 1911 : Young at Carnarvon. The Babblers in the south-west and around Broome Hill are considerably larger than the Carnarvon

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birds, and the birds in the extreme south-west corner, as on the Blackwood and Warren Rivers, differ from the Broome Hill ones. The breeding-season at Broome Hill extends from August to the end of December, as nests containing fresh eggs were frequently found in and between these months. Three eggs is the usual clutch. The bulky nests are usually placed from twenty to thirty feet from the ground in the leafy tops of Jam and She-Oak trees. Brightly coloured parrots' feathers are commonly used in nest linings, and sheep's wool. These birds pull to pieces nests of other species and destroy or eat the eggs. I have watched them destroy a Wattle-Bird's nest and eggs. The Babblers do not appear to go right to the coast in the south-west."

He later wrote in the Ibis: "The Carnarvon Babbler is a good subspecies, being much smaller than the south-western form, *M. s. ashbyi*. These birds were, as usual, plentiful in the scrub around Carnarvon in 1911, 1913 and 1916. Fledged young birds were noted there on 19th September, 1911, and three eggs were found in a nest on 23rd September, 1913. As compared with a series of eggs of *Morganornis s. ashbyi* from Broome Hill, the Carnarvon eggs are much shorter, having both ends very round and blunt, and are .84 of an inch in length, those from Broome Hill averaging .96. The Carnarvon eggs are heavily blotched all over with purplish-brown, and the black hair-streaks, which are usually numerous on eggs of *M. s. ashbyi*, only appear on two of the Carnarvon eggs, and are limited to one long streak on the large end of each."

Of *M. s. ashbyi* he noted: "Western White-browed Babblers were commonly seen about Broome Hill and the inland areas of the south-west, which are not so heavily timbered as the coastal parts. I had never seen any of these birds between the Vasse and Warren Rivers until 31st March, 1919, when I came upon a small party near Warren House. A specimen obtained seemed to be a typical *M. s. ashbyi*."

Captain S. A. White wrote regarding the Gawler Ranges, South Australia: "Was a common bird all through this country, and it is wonderful the amount of time they spend in building nests which they never lay in, and these abandoned nests are so well constructed that they last a number of seasons before they fall to pieces, so that great numbers are found in all the trees and shrubs, especially near dry watercourses. Eggs were found in some nests; on more than one occasion birds were flushed from the nest, and on investigation it was found that there was a single heavily incubated egg. Three or four eggs seem to be the average clutch in this district."

Mr. E. J. Christian has sent me a long note: "Considering the great number of species which we have in this continent it is surprising to find that so many of them are insectivorous and useful. This species, I think, may easily

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be placed amongst the first of the most useful, although there are so many which may be regarded as such. It is chiefly found in Victoria in the north and north-western districts and is found all over Australia, except in the north-west and Tasmania. In the south and south-east of Victoria it is chiefly represented by *P. temporalis*. It is an invaluable aid to orchardists; when in an orchard they make a thorough inspection of not only each tree, but also the ground under each tree. They are never still, but hop about over the ground continually calling out a peculiar note described by some like a mew of a cat, but I think it more like the whine of a puppy. In fact, I was asked once by a visitor here: 'Where are the pups which I heard whining in the garden early this morning?' Other times they will call to each other with a note which sounds like 'Get-a-way n-o-w' or 'Get-a-way soon'; sometimes it sounds like 'Going to rain soon, going to rain soon.' When disturbed they make a very harsh row; they are not good fliers and are never seen out of timber here. They generally fly very low to the ground and run up the trunk of a tree and jump from bough to bough calling out the whole time. Insects and their larvæ, which are found in bark and especially in the bark of fruit trees, have no chance against them, and it is by their thorough searching that the orchardist profits. As I said, they pick about under trees so that if eggs or grubs, such as the grub of the devastating fruit fly (*Halterophora capitata*) drop, these birds find them. When feeding on the ground they are very amusing to watch, as they are very stiff-looking birds. They appear like the Dotterel (*Peltohyas australis*) to work on a pivot, for when they put their heads down to eat up goes the tail. The most interesting and peculiar habit that the bird has got is its extraordinary mania, if it may be called so, for building nests. In quite a small area one often finds many nests, but perhaps only one out of every eight or nine will be used. It is not as if one pair build by themselves, because they are generally helped by three or four other pairs. I have seen as many as fourteen birds building one nest. The nests are built very quickly as can be imagined with so many willing workers. I have known many nests which were built by eight or nine birds and then not one of them took possession of it. How they arrange who is to inhabit the newly-made nest or whether it is to be inhabited I don't know, but it is a very pretty sight to see after a nest is finished three or four pairs huddled together on a bough with plumage all ruffled out and a continuous mewing or whining kept up. Whether they are courting or having a council it is hard to say. As a rule they are the earliest builders in this district, and I have seen them building nests in the end of May, as was the case in 1907. In 1905 I found a nest on July 14th containing three half-fledged young, and that is fairly early, as at that date I have generally only found eggs, although the nest may have been

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completed some time before. In 1908 they were very late, the first completed nest I found being on July 23rd; in fact, it was scarcely completed, as the birds were putting a little more lining into it. In 1902, which was a very dry year, as was 1907, I knew of young out of the nest by the end of June."

The systematic history of this species is brief but not without interest, as this species shows variation like the preceding, but, of course, with its more limited range to a less extent.

In 1911 I separated the form from South-west Australia as:

Pomatostomus superciliosus ashbyi Mathews

on account of its larger size, the bill being conspicuously longer, and the generally lighter coloration of the upper parts.

The next year I added:

Pomatorhinus superciliosus gilgandra Mathews.

"Differs from *P. s. superciliosus* in being much darker above, especially on the head. Gilgandra, Northern New South Wales,"
and

Pomatorhinus superciliosus gwendolenæ Mathews.

"Differs from *P. s. ashbyi* in being much smaller in the wing, viz., 74 mm.; typical *P. s. ashbyi*, wing 87 mm. Carnarvon, West Australia."

Since then nothing has been added, and the subspecies have received acceptance from independent critics, so that we have, as given in my 1913 "List":

Morganornis superciliosus superciliosus Vigors and Horsfield.

South Australia; Victoria and Southern
New South Wales.

Morganornis superciliosus gilgandra Mathews.

Northern New South Wales.

Morganornis superciliosus ashbyi Mathews.

South-west Australia.

Morganornis superciliosus gwendolenæ Mathews.

Mid-west Australia.

Order PASSERIFORMES.

No. 514.

Family CINCLOSOMATIDÆ.

MORGANORNIS RUFICEPS.

CHESTNUT-CROWNED BABBLER.

(PLATE 433, lower figure.)

POMATORHINUS RUFICEPS Hartlaub, Rev. Mag. de Zool., 1852, p. 316, July Number, published August. "Adelaide, South Australia"=Broken Hill.

Pomatorhinus ruficeps Hartlaub, Rev. Mag. de Zool., 1852, p. 316; *id.*, Journ. für Orn., 1853, p. 31; Gould, Birds Austr. Suppl., pl. 38 (pt. ii.), Sept. 1st, 1855; Krefft, Proc. Zool. Soc. (Lond.), 1858, p. 352; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 420, 1883; Hall, Key Birds Austr., p. 29, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 273, 1901; Mathews, Handl. Birds Austral., p. 71, 1908; *id.*, Nov. Zool., Vol. XVIII., p. 335, 1912.

Pomatostomus ruficeps Gould, Handb. Birds Austr., Vol. I., p. 484, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; *id.*, Tab. List Austr. Birds, p. 12, 1888; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 364, 1904; Mathews, List Birds Austr., p. 202, 1913; S. A. White, Emu, Vol. XV., p. 160, 1916 (Cent. A.); *id.*, *ib.*, Vol. XVIII., p. 21, 1918 (S.A.).

Pomatostomus ruficeps bebbi Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7, 1916: South Queensland.

Pomatostomus ruficeps parsonsi Mathews, Bull. Brit. Orn. Club, Vol. XXXVIII., p. 48, March 4, 1918: Pungonda, South Australia.

DISTRIBUTION. Adjoining portions of interior of South Queensland, New South Wales, Victoria and South Australia.

Adult. Crown of head and nape dark chestnut; upper-back and scapulars slate-grey with dark centres to the feathers, becoming uniform on the lower-back and rump; lesser upper wing-coverts dark brown edged with slate-grey, the median and greater series also dark brown margined with white at the tips like the innermost secondary quills; bastard-wing and primary-coverts dark brown slightly marked with white at the tips; flight-quills hair brown, paler on the outer and inner margins; upper tail-coverts blackish with dark smoke-brown margins; central tail-feathers blackish, the lateral ones black broadly tipped with white; lores and feathers in front of the eye black; a supraloral stripe of buffy-white which extends above the eye and along the sides of the crown on to the sides of the nape; hinder-portion of eyelid and sides of face dark brown, the upper and lower portions of the eyelids white; chin, throat, breast and middle of abdomen cream-white; sides of body and thighs dark dusky-bronze-brown; the feathers on the sides of the breast which divide the white from the dusky olive-brown are partially black; the feathers of the vent and under tail-

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coverts are dusky at the base and white at the tips ; axillaries like the sides of the body ; under wing-coverts chestnut, the marginal or outer coverts white ; under-surface of flight-quills greyish-brown with a rusty tinge ; lower aspect of tail black with white tips to the feathers. Eyes brown, bill dark horn, base of lower mandible whitish ; feet and legs blackish. Total length 204 mm. ; culmen 22, wing 90, tail 87, tarsus 26. Figured. Collected at Pundonga, near Luxton, South Australia, in May 1917. The sexes are alike.

Immature. Crown of head blackish-brown ; lower and sides of face similar with a small white patch on the hinder-part of the eye, and some white-tipped feathers on the sides of the nape ; a buff supraloral streak which extends over the eye and along the sides of the crown ; hind-neck, back, and upper tail-coverts dusky brown with a greyish tinge like the lesser upper wing-coverts ; median and greater upper wing-coverts and bastard-wing blackish, margined with white like some of the innermost secondaries ; primary-coverts and flight-quills blackish-brown with slightly paler edges on both webs ; tail black, broadly tipped with white on the lateral feathers ; chin, throat and neck white like the middle of the breast and centre of the abdomen ; sides of breast chestnut-brown ; lower flanks, thighs, vent and under tail-coverts dusky with whitish tips to the last ; under wing-coverts pale chestnut, the marginal coverts black and white ; under-surface of flight-quills dark brown ; lower aspect of tail black tipped with white ; eyes muddy brown ; feet and bill dark grey ; gape white, throat orange-yellow. Collected at Cobar, New South Wales, on the 14th of September, 1911.

Male, juvenile. Crown of head dark chestnut ; hind-neck, back, scapulars and lesser upper wing-coverts hair-brown with darker centres to the feathers on the back ; median and greater upper wing-coverts blackish-brown, broadly margined with white, bastard-wing and primary-coverts similar ; flight-quills brown becoming darker on the innermost secondaries which are margined with white at the tips ; upper tail-coverts somewhat darker than the back, with chestnut margins ; tail black, the lateral feathers broadly tipped with white ; a white superciliary line from the base of the bill to the sides of the crown tinged with chestnut ; lores and fore-part of eyelid black ; upper and under eyelid white ; feathers below the eye and ear-coverts dark brown ; sides of the neck speckled with brown, black, and white ; throat, breast, and middle of abdomen white ; sides of breast and sides of body chestnut more or less mixed with blackish ; flanks, thighs, vent and under tail-coverts dark smoke-brown with whitish tips to the feathers on the vent and under tail-coverts ; inner under wing-coverts pale chestnut, the marginal ones whitish, the greater series greyish-brown like the quill-lining ; lower aspect of tail blackish with white tips to the feathers. Collected at Cunnamulla, Queensland, on the 18th of July, 1902.

Nest. Dome-shaped with side hooded entrance. Roughly composed of sticks, lined with grass, wool, etc. Outside measurements 12 inches by 8.

Eggs. Clutch, four. Ground-colour light stone or brown. Marked with hair-like markings, more at the larger end, of sepia or blackish-brown. 25 mm. by 17.

Breeding-season. July to December.

HARTLAUB described this fine species from a collection of South Australian birds sent to the Bremen Museum from Adelaide, and sagaciously remarked : " It is remarkable that the bird escaped the researches of Mr. Gould and his collectors, and one cannot help imagining that it must have recently arrived from some part of the interior of the country, and accompanied other stragglers

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towards the coast." When Gould quoted this in his Handbook he added: "Since that period the bird has been discovered in other parts of Australia, and I am indebted to Professor M'Coy for fine examples procured in the interior of Victoria."

Mr. Edwin Ashby has written: "We found this noisy and interesting bird in great numbers in the Pine country (*Calytrix*) between Pungonda and the Victorian border in September 1917. As far as my observation went this species only occurs in the pines I saw both sides of the border. The nests are remarkable structures made of twigs so intertwined that nests thrown down from the top of a tree did not suffer by the fall; they are two feet long and funnel-shaped. Quite a number of adult birds joined in the feeding of the young in a nest just above our tent."

Mr. Thos. P. Austin has sent me a note: "During November 1910, I found the present species fairly plentiful in the Bourke district of New South Wales, but I have never met with it here (Cobbora, New South Wales). They appear to very much resemble the common Babbler in habits, but are more active while feeding upon the ground, and hopping about in trees, and are also more shy. Their nests are very similarly constructed, but smaller, and their notes are quite different."

The first published note of its nesting habits and economy was given by Krefft, and I give some of his account herewith: "Their favourite haunts are clusters of dead box timbers and scrubby flats studded with salt bush, etc. This bird is remarkably shy, and so cunning that in almost all cases it will evade pursuit by running into some scrubby bush, and hide there till the danger is over. Its power of flight is exceedingly moderate, and closely resembles that of the brown Tree-creeper. These birds are always found in flocks of from four or five to twenty and more. They keep a good look-out; and as soon as they suspect danger, they will rise with a sharp whirring noise, and seek shelter among the foliage of another tree, or run at a quick pace along the ground. They are very restless and keep constantly moving up and down the branches and in the shade of foliage, so that it is very difficult to obtain a shot at them. Different kinds of insects appear to be their principal food, as I have found the remains of grasshoppers, etc., in their stomach."

The restricted range of this species has shortened the technical details. Until quite recently no subspecies were named. I proposed:

Pomatostomus ruficeps bebbi Mathews.

"Differs from *P. r. ruficeps* Hartlaub in having the chestnut on the head much deeper in colour. South Queensland."

And later:

Pomatostomus ruficeps parsonsi Mathews

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from Pungonda, South Australia, a much paler form, restricting *P. r. ruficeps* to the Broken Hill district.

The reference to the genus *Pomatostomus* was bad, as this species is strictly congeneric with *superciliosus*, the type of *Morganornis*, and as the three races may, at present, be recognised, the names read:

Morganornis ruficeps ruficeps (Hartlaub)

Broken Hill district, New South Wales.

Morganornis ruficeps bebbi (Mathews).

South Queensland.

A northern, rather darker, race.

Morganornis ruficeps parsonsi (Mathews).

South Australia.

A southern, much paler, race.

GENUS—CALAMANTHUS.

CALAMANTHUS Gould, Synops. Birds Austr.,
pt. iv., App., p. 4, April 1, 1838.

Type (by original designation) *Anthus fuliginosus*
Vigors and Horsfield.

Praticola Swainson, Classif. Birds., Vol. II., p.

243, July 1837. Type (by monotypy) ... *P. anthoides*=*A. fuliginosus*
Vigors and Horsfield.

Not—

Praticola Kaup, Skizz. Entwick. Gesch. Nat. Syst., p. 114, 1829.

SMALL birds with flat heads, medium bills, short rounded wings, long rounded tails and long stout legs, and feet with long claws.

The bill is about as long as the head, the culmen keeled, the tip decurved and posteriorly notched, a little expanded basally; the nasal apertures are linear with a swollen operculum in a marked nasal groove; a couple of bristles project over the nostrils, and three stout rictal bristles can be counted on each side; the lower mandible is stout, the rami extend about half the length, the anterior portion attenuate, the rami divergent posteriorly enclosing a triangular feathered space, the gonys a little upcurved.

The wing is short and rounded, the third, fourth and fifth primaries subequal and longest, the sixth and seventh primaries slightly less but a little longer than the second, which is equalled by the eighth primary and the secondaries; the first primary is short, about one-half the length of the third.

The tail is about the length of the wing, of rounded shape.

The legs are long, about twice the length of the culmen; anteriorly about seven regular scutes, posteriorly bilaminate; claws long, hind-claw very long and little curved; mid-toe longest, without claw as long as inner and outer toes with their claws which are subequal; the hind-toe is stouter and with long claw longer than mid-toe and claw.



H. Grönvold, del.

Witherby & Co

CALAMANTHUS FULIGINOSUS.
(STRIATED FIELD-WREN).

CALAMANTHUS FULIGINOSUS.

STRIATED FIELD-WREN.

(PLATE 434.)

ANTHUS FULIGINOSUS Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 230, Feb. 17, 1827 = Tasmania (= South).

Anthus fuliginosus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 230, 1827.

Calamanthus fuliginosus Gould, Synops. Birds Austr., pt. iv., App., p. 4, April 1838; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 150, Dec. 1838; *id.*, Birds Austr., pt. xvi. (Vol. III., pl. 70), Sept. 1st, 1844; *id.*, Handb. Birds Austr., Vol. I., p. 388, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 501, 1883; Ramsay, Tab. List Austr. Birds, p. 9, 1888; Hall, Key Birds Austr., p. 29, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 278, 1901; Hill, Emu, Vol. II., p. 163, 1903 (Vic.); North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 353, 1904; Batey, Emu, Vol. VII., p. 7, 1907 (Vic.); Legge, *id.*, Vol. VII., p. 150, 1908 (Tas.); Mathews, Handl. Birds Austral., p. 71, 1908; Littler, Handb. Birds Tasm., p. 43, 1910; Dove, Emu, Vol. IX., p. 152, 1910 (Tas.); *id.*, Ibis, p. 269, 1912.

Praticola anthoides Swainson, Classif. Birds, Vol. II., p. 244, July 1837: N. Tasmania (December). *Nomen nudum*; *id.*, Anim. in Menag., p. 343, Dec. 31, 1837.

Calamanthus albiloris North, Victorian Naturalist, Vol. XIX., p. 102, Nov. 6, 1902: Victoria; *id.*, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 355, 1904; Campbell, Emu, Vol. IV., p. 122, 1905; Mathews, Handl. Birds Austral., p. 71, 1908; Chandler, Emu, Vol. XI., p. 237, 1912; S. A. White, *ib.*, Vol. XIV., p. 141, 1915; Purnell, *ib.*, Vol. XV., p. 42, 1915.

Calamanthus montanellus Milligan, Emu, Vol. II., p. 200, April 1st, 1903: Stirling Ranges, West Australia; *id.*, Vol. III., p. 13, 1903; *id.*, *ib.*, p. 224, pl. iii., 1904; Hall, Key Birds Austr., 2nd ed., p. 112, 1906; Mathews, Handl. Birds Austral., p. 71, 1908; Carter, Emu, Vol. VIII., p. 97, 1908; Hall, *ib.*, Vol. IX., p. 128, 1910; H. L. White, *ib.*, Vol. X., p. 293, 1911; Whitlock, *ib.*, p. 310.

Calamanthus diemenensis North, Austr. Mus. Spec. Cat. No. 1, Vol. I., pt. iv., p. 354, July 11, 1904: Waratah, Tasmania.

Calamanthus fuliginosus fuliginosus Mathews, Nov. Zool., Vol. XVIII., p. 336, 1912; *id.*, List Birds Austr., p. 203, 1913.

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Calamanthus fuliginosus diemenensis Mathews, Nov. Zool., Vol. XVIII., p. 336, 1912 ;
id., List Birds Austr., p. 203, 1913.

Calamanthus fuliginosus albiloris Mathews, Nov. Zool., Vol. XVIII., p. 336, 1912 ; *id.*,
List Birds Austr., p. 203, 1913 ; Belcher, Birds Geelong, p. 255, 1914.

Calamanthus fuliginosus montanellus Mathews, Nov. Zool., Vol. XVIII., p. 337, 1912 ;
id., List Birds Austr., p. 203, 1913.

Calamanthus fuliginosus carteri Mathews, Nov. Zool., Vol. XVIII., p. 337, Jan. 31, 1912 ;
Broome Hill, West Australia ; *id.*, List Birds Austr., p. 203, 1913 ; Carter, Ibis,
1921, p. 55.

DISTRIBUTION. Tasmania ; Victoria ; (?) New South Wales ; (?) South Australia ; South-
west Australia.

Adult male. General colour of the upper-surface greyish-olive with blackish elongated centres to the feathers including the top of the head, entire back and scapulars ; wings hair-brown with slightly paler edges to the feathers including the flight-quills ; middle tail-feathers bronze-brown with an indication to indistinct cross-bars, outer feathers bronze-brown with a black subterminal band, and whitish or greyish-white tips to the feathers ; an indistinct line of white from the lores to above the eye and along the sides of the crown ; fore part of head tinged with rufous ; sides of face bronze-brown ; throat and fore-neck white with blackish shaft-stripes ; breast, abdomen and sides of body yellowish-white with blackish shaft-streaks to some of the feathers, inclining to rust-colour on the thighs and under tail-coverts ; under wing-coverts pale buff like the inner edges of the quills below ; remainder of quill-lining hair-brown ; lower aspect of tail similar to its upper-surface. Bill very dark horn, feet brownish horn, eyes buff. Total length 137 mm. ; culmen 12, wing 56, tail 52, tarsus 24. Figured. Collected in the Stirling Ranges, West Australia, and is *Calamanthus montanellus* Milligan.

Adult male. General colour of the upper-surface yellowish-olive with longitudinal black centres to the feathers, including the top of the head, entire back, upper tail-coverts, and upper wing-coverts ; flight-quills blackish-brown margined on the outer webs with olive ; tail olive with a black subterminal band and grey or whitish tips to the outer-feathers, the middle feathers have only a widened black shaft-line ; lores, a line above the eye, and eyelids white ; sides of face pale tawny with a few dark spots intermixed ; chin and throat white streaked with blackish ; remainder of the under-surface pale tawny with blackish shaft-lines, including the breast and sides of the body, becoming paler and uniform on the middle of the abdomen ; axillaries and under wing-coverts buff ; under-surface of flight-quills dark brown ; lower aspect of tail similar to its upper-surface but paler. Total length 137 mm. ; culmen 12, wing 59, tail 52, tarsus 23. Figured. Collected at Frankston, Victoria, on the 23rd of April, 1908, and is *C. albiloris* North.

Adult female. Very similar to the male, but the white eye-stripe and throat not so marked.

Immature and Young. Very similar to the female.

Nest. Dome-shaped, with side entrance. Composed outwardly of moss, leaves, etc., then dried grasses and lined with feathers. Measurements outside 5 inches long by 4 wide, and placed on or near the ground.

Eggs. Clutch, three. Ground-colour differing shades of brown, clouded with marking of a darker shade and sometimes with a zone at the larger end. 19-20 mm. by 17-18.

Breeding-season. July or August to December.

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"PROCURED by Mr. Robert Brown at Van Diemen's Land in 1804" is the sole data provided by Vigors and Horsfield when they described *Anthus fuliginosus* as a new species from the collection of the Linnean Society and as an excuse for the generic location they explained: "The birds of the group just described which are in our collection are in general in bad condition, and we have been obliged to confine ourselves to a few details only of their characters." Nothing was known of its economy at that time. Swainson and Gould simultaneously proposed new generic names for the species, and as the name selected by the former was preoccupied, Gould's generic name has undisputed usage.

Gould's observations read: "This species is very generally disposed over Tasmania, where it frequents open forests and sandy land covered with scrub and dwarf shrub-like trees. It carries its tail erect, like the *Malusi*, but differs from the members of that group in moving that organ in a lateral direction whenever it perches, and at the termination of a succession of hops on the ground, over which it passes with great celerity, depending at all times for safety more on this power than on that of flight. It eludes pursuit by running through a bush to the opposite side, and hopping off to another beyond, which it does quite unseen unless closely watched. It builds a dome-shaped nest, which is placed on the ground, and frequently so hidden by the surrounding grass as to be with great difficulty discovered; a small narrow avenue of a yard in length, like the run of a mouse, being frequently resorted to by the bird, expressly, as one would suppose, to avoid detection. The nest is formed of dried grasses and leaves, and is warmly lined with feathers. The breeding-season commences in September and lasts until January. This species emits so strong an odour that pointers and other game dogs stand to it as they do to a quail, and that too at a considerable distance. It possesses a clear and pretty song, which it frequently pours forth while sitting on a bare twig, or the summit of a low bush or shrub among the thickets, to a part of which it dives on the least alarm. The sexes are precisely similar in colour, and nearly so in size."

Mr. Edwin Ashby has written me: "Very common on the swampy flats at Gladstone, South Tasmania, in September 1909. First thing in the morning if the sun were shining the cocks would sit on the top of some low bush a couple of feet above the ground and pour forth a sweet piccolo-like song. Near Sandford also, in South Tasmania, I noticed many of these birds in the tall Samphir in the saltish swamps, and on the 6th October, 1916, I found nests ready for eggs, but none had eggs laid. They are very cautious birds, moving so rapidly from bush to bush that it is very difficult to shoot them. The Victorian form was very common in the large swamps near Cranbourne, Victoria, in the winter of 1886."

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Messrs. F. E. Wilson and L. G. Chandler have forwarded me the following fine account: "In the open heathy scrubs around Frankston, Vic., this bird is fairly numerous. Wherever a certain species of dwarf *Casuarina* grows you are almost certain to find them. This bush affords excellent hiding-places and a shade from the heat of the sun. The birds are also partial to bayonet-grass country. Although generally frequenting damp, swampy country, we have frequently observed them in the summer months on a dry treeless hillside. However, during the winter these hillsides are wet and slippery, through numerous small springs that bubble and ooze through the soil. In the month of April 1909, several days were spent studying the habits of these shy little birds. In one paddock about five pair of birds were located and their warbling songs could be heard from bush-tops in all directions. Some of the notes are very sweet, but one or two are a little harsh and therefore the effect of the song as a whole is spoilt. Some time was spent in the endeavour to get the correct phonetic pronunciation on paper. As the song seems to vary slightly this was not an easy task. With one bird it sounded 'Rike-rike-richee-richet-ru-keer,' while the notes of another resembled 'Rike-rike-richet-to-reck-it-qu, to-reck-it-qu.' These notes are repeated several times in quick succession. When mounting a bush-top to sing the birds are extremely wary. They often converse their song in a low key and continue in this strain for some time. By actual count one shy little fellow sang so for twenty seconds. The effect is curious, the song seeming to come from a bird hundreds of yards away. Having satisfied themselves that no danger is lurking at hand they break into the full-throated song. As they sing they restlessly move the head from side to side, ever on the look-out for an enemy. Creeping close to a singing bird, you quickly notice the vibrating tail. This is caused through the intensity of the bird's singing. At almost any time of the day you may hear the song of this species, and when it has been too dark to distinguish the bird we have heard one pouring forth its joyous song on the evening air. The bird will allow you to approach to about thirty yards and then the song suddenly ceases. It wags the tail swiftly from side to side, swaying the body in the process, and darts suddenly into the bush below. If you are lucky you may flush it, but generally several yards from where it alighted. The speed with which these birds run along the ground is amazing. We noticed they almost invariably alight on the ground after a flight. On the wing the tail is lowered to the plane of the body. For a second or two when the bird settles, the tail is elevated over the back, but immediately lowered as they dart into cover. In the curious crouching attitude they assume this species resembles a mouse when running quickly through the grass. On account of the splendid protective coloration of their plumage, they are very adept in the art of hiding.

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Having seen one enter a small clump of bushes, we walked backward and forward for several minutes, but failed to see a sign of it. Standing quiet for a while, we were astonished at seeing the bird run rapidly through the grass—apparently from our feet—to another bush. In the early morning when the grass is wet with dew it is exceedingly difficult to flush a bird. They realise the disadvantage of wet plumage and trust almost entirely to their excellent running and hiding powers to evade your vigilance. This habit makes it a matter of much patience to secure a specimen. If accompanied by a dog your object will be soon attained, but without that valuable ally you may waste a considerable amount of time endeavouring to shoot a bird on the wing. From our observations it would appear to be the male bird only that sings so vehemently, the female being remarkably quiet. The latter is more shy and accordingly harder to obtain. The female—lacking the white eyebrow and throat of the male—would be readily distinguished if singing on a bush-top, and every example we have noticed proved to be a male. They are local in their habits, a pair keeping within an area of ground fifty to a hundred yards square. At different times of the year we have visited these localities and noticed a bird singing on the topmost twig of a favourite bush where one was observed months before. Early in April a bird was seen chasing another through the bushes, and several male birds on dissection proved the fact that the breeding-season was at hand. The one female obtained showed no signs of breeding. From several roosting places observed the birds perch of a night on an average about a foot from the ground in dwarf *Casuarina*. The gizzard of one bird contained a number of a winged species of ant, and another grass seeds and the fragments of small beetles. Snakes and blue-tongue lizards spread mortality by eating the eggs and young of this species. One of the writers has had two narrow escapes from snakebite when searching for the closely-hidden nest, and Mr. R. C. Chandler, his father, hearing some young birds squeaking in distress, hurried to the spot, and caught a blue-tongue lizard in the act of devouring a young one.”

Mr. Tom Tregellas has written me: “The Striated Field-Wren (*Cal. fuliginosus*) is found in most of the heath-covered portions of the Southern States. It is a close sitter, and can only occasionally be flushed from its concealment in the scrub, and even then it rapidly settles again and is lost if not soon located by a second party. It is next to impossible to flush it a second time if by oneself. They must nearly always be shot when on the wing, and that very quickly, as they disappear as if by magic. Occasionally they are seen perched on a topmost twig of some scrub twittering to themselves or calling to a mate, and in that position may sometimes be secured. The nest is placed low down in some dense scrub and is exceedingly hard to find. When

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the bird leaves the nest it runs along the ground rapidly, as its long legs will easily show, and the coloration of the back harmonises perfectly with the surroundings."

Batey, in his account of the bird-life of Victoria in the "fifties," wrote of the Striated Field-Wren: "This natty bird, with greenish-tinted plumage, cocked tail, shy habits, and most agreeable warbling voice, has ever been a permanent. Found of old on part of run called 'Brock's Bottom,' where there were some loose rocks with a few bushes. Apparently it has increased, for now we find it about stone walls, in which it takes refuge when alarmed. Never under any circumstances has it been seen close to watercourses."

Legge has provided an excellent account which deserves reproduction, as it deals with a matter previously little discussed yet which is of importance in the life economy of birds: "This sprightly bird is the earliest harbinger of spring in our hill district, and though it breeds with us in August, it is still earlier along the coast (Tasmania). Its little song, which is heard especially in the evening while winter is yet upon us, makes one look upon it as the 'harbinger' of the joyous time when the denizens of 'field and forest' are busy mating and nesting. There is no bird in this island which has such home-like notes as those which this little frequenter of rushes, saggs (*Xerotes longifolia*) and patchy undergrowth of the open, pours forth in the chilly month of August as it perches on the topmost twig of a leafless briar, the post of a fence, or any prominent branch of broom or gorse from which it desires to captivate its quiet-plumaged little mate. In so doing it suddenly emerges from vegetation near the ground, its normal resort, and, mounting as high in the scrub as it can get, begins at once its sweet little warble, which recalls in some of its clear though gentle notes the voice of the Lark and also the Yellow-Hammer of our English fields. It is fond of thus calling to its mate just before sunset when the breeding instinct first pervades it; but later on, in September, it may be heard during the morning and afternoon trilling its nuptial song to its partner as she sits on her well-concealed nest. In regard to the alteration of habits consequent on the colonisation of the country, the case of the *Calamanthus* is perhaps more interesting than that of any other bird. In primeval days this 'Wren' affected only the natural tussocky vegetation and patchy, ferny undergrowth typical of what we call 'open bush.' Much of this has disappeared through cultivation, burning off, and clearing, but in some soils saggy growth is still provokingly persistent, though in moderation it has its merits in shelter for lambs in the spring. Where this favourite cover is removed the little Field-Wren has taken to that provided by introduced growth such as hedges of gorse, briar, broom, the thick rushy vegetation which establishes itself on the margins of ditches or along old fences. More interesting

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still is the abandonment of its shy nature, as shown when flushed from the original growth of the country. For, as an inhabitant of our lanes, hedges, and evergreen fences, it is by no means a timid species, and when affecting thoroughfares is to some extent a familiar roadside bird. Here it reminds one of the Hedge-Sparrow (*Accentor*) in England, although its wonderful agility as a ground bird is not possessed by the latter species. It is very fond, too, of old roadside fences, the base of which is lined with patchy undergrowth, out of which it will dart to a top rail or post and then quickly disappear to a lower panel, darting to the ground and hopping with lightning speed along the further side of the fence to a clump of briar or rushes. Thus we have here an instance, in a small degree, of the evolution of new or abnormal habits which have, in some instances, become so noteworthy in Australasia and New Zealand. The breeding-season here extends over a long period. This year (1907) a young bird was noticed in one of our lanes early in July. Usually the young are not about before the end of August or beginning of September on these uplands, but this is early, as newly-fledged individuals are about this month (December). On the coast belts, where the bird much frequents the tussocky hollows and stretches among sand dunes, the breeding-season appears to be mostly in the month of July. When flushed among the natural vegetation of the sheep-runs the Bush Warbler rises at one's feet from among saggs or thatch-grass (*Poa caespitosa*), and suddenly alights, darting along the ground with extraordinarily agile hops, so that, however quickly one may rush up to its supposed position, it is never to be found anywhere near it, and is flushed again with difficulty. It is in such localities much shyer than among its aforementioned exotic shelters."

Milligan's notes on his description of *Calamanthus montanellus* read: "The new bird was found in the sterile stony tracts on the north or sheltered side of the Stirling Ranges. Its song is a series of musical warbling notes, which it utters either on the ground or in a low bush. It runs along the ground like a mouse, and is very difficult to flush. Apparently it does not leave a body scent as *C. fuliginosus* is said to do, as my Quail bitch did not show any disposition to follow it, neither did she show any canine signs of pleasure when the dead bird was placed near her nose. The birds were very numerous in the sterile places indicated, but very difficult to secure."

Later, from the Wongan Hills, he wrote: "Owing to the running, secretive habits of the species, specimens were hard to get, although the birds were numerous in every part. Their beautiful, clear, warbling notes, uttered usually whilst perched on the top of a low bush or running along the ground, were always charming."

Whitlock's observations made on the Stirling Ranges read: "This is

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a cheerful and fearless little bird, which seems to prefer rather than shun the presence of man or other animate being. It has a simple but pleasing song, the cadences, though brief, being uttered in a very musical tone. When singing it usually perches on some point of vantage, and will continue its song despite the presence of an intruder within only a few feet of its perch. It inhabits the stony foothills of the ranges or the sparsely-clothed sand plains, showing a preference for those tracts either devoid of vegetation or where the scrub is of the most stunted character. I never saw it amongst timber, but it was not uncommon on the sandbanks on the eastern side of Lake Balicup, where there was a sparse growth of saltbush and samphires, and a more luxuriant crop of tussocky grasses. I did not see a single specimen west of the sand plain which terminates with the belt of timber at Solomon's Well. It was present as far east as I penetrated, but did not seem to ascend very far up the slopes of the various peaks. This bird must be an early breeder, as young were on the wing when I arrived in the Ranges. Young in nestling plumage hardly differ from adults."

Mr. Tom Carter writes: "The Rock Field-Wren (*C. montanellus*) is common on the sand plains to the east and south-east of Broome Hill, as far as the Stirling Ranges. It is very similar in its habits to the Rusty Red Field-Wren that occurs about the North-west Cape. Mr. A. W. Milligan, who first described this 'species,' named it '*montanellus*' because he only observed it on rocky or stony country (the Stirling Ranges), but my experience is that it is quite at home in all sand plain country of that district, especially where low scrub grows, under the shelter of which it often hides until almost trodden upon, and then rises, with a distinct 'whirr' of its wings, and dropping at no great distance from where disturbed, it runs at a great speed under the bushes, and is not again easily flushed. The song is a very sweet chirping one, uttered from the top of a low bush, and it resembles that of *Cal. rubiginosus*. On the approach of anyone the bird drops down into the bush and runs rapidly away along the ground. On August 28th, 1908, I found what I believe to be the first authenticated clutch of eggs a few miles east of Broome Hill on a sand plain. After some time spent in systematically tramping through some fairly thick scrubs, from five to ten feet in height, one of these Wrens was seen rapidly creeping away from me, on a fairly open patch of ground without much scrub growing on it. As I did not see from where the bird started, and being afraid of stepping upon a nest, I marked the place, and returned there after an hour's interval. To my surprise the bird emerged from a piece of ground almost devoid of any vegetation, and rapidly twisted itself out of sight by running and crouching close to the ground, until it reached some close rushes. Getting down on my knees I saw the aperture of the nest, which

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was almost level with the ground surface, the nest itself being built in a slight hollow, as of a horse's footmark. The top of the nest was rounded, and made of short pieces of dry grass, so that it exactly resembled one of the nests of a species of small ant that abounds on the sand plains. Probably this resemblance was intentionally made by the birds for the protection of the nest? The nest was globular in shape, about four inches in diameter, and its aperture was one and a-half inches in length and one inch high facing the north. The nesting material was coarse dry grass, mixed with a few dead leaves and heads of wild flowers and stalks, all loosely put together. It was lined with many feathers, among which were many red, blue and green ones of *Platycercus semitorquatus* and *icterotis*. There were three eggs, which is the usual clutch, resembling those of *Cal. fuliginosus*. The female bird was shot for identification. The main breeding month appears to be August and extending to September. Nov. 1, 1908: Many fledged young seen. Aug. 28, 1910: A nest containing two eggs and one of *Cacomantis flabelliformis*. Sept. 11, 1910: Several birds sitting, and also young. Sept. 25, 1910: Caught three fledged young (a brood)."

Mr. Thos. P. Austin has written me: "While collecting in the Stirling Range district, Western Australia, upon my behalf, Thomas A. Burns found several nests of this species, and in his notes he states: 'The nests were all exactly alike, composed of rootlets, fine grass and lined with feathers, placed in a slight depression in the ground, in the middle of a sand plain without any shelter.'"

Mr. H. S. Dove has forwarded me a lot of excellent notes, from which I extract the following: "The Rush-Warbler or Striated Field-Wren sings sweetly his little ditty all through the cold wet months of winter and spring; he is, in fact, one of our most persistent songsters, and, I think, there are only two months of the year, February and March, when his pleasing, oft-repeated phrase may not be heard. He loves the swampy plains near the sea, and carols forth his lay while sitting upon the apex of a short growth of swamp tea-tree, or upon the summit of a big sagg or tussock. Breeding begins, I believe, in July, when the songs of the *Calamanthus* may be heard everywhere about the coast; certainly it is in full swing the following month. The young appear to be of a generally darker hue than the parents, and the plumage even more 'splashed' or striated. The adult male is a darker, handsomer bird than his mate, the striations are more distinct, and I have noticed as a little trait that he sings *desperately* when one is getting near the nest or young, hoping probably to draw one's attention to himself and thus save the home. Although there is, of course, a general likeness in the songs of this species, yet those of individuals vary a good deal; if I go to a spot where something in an individual

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strain has struck me I can be sure of hearing the same strain repeated over and over again. Although the tail is sometimes 'perked up' when singing, yet in many cases it is held down in a line with the body, and the little songster will generally retain his perch while one passes within a few yards, still uttering his ditty, although he swings about a good deal, as if excited when one is close."

The systematic account of this species is somewhat peculiar; on account of the long hind-claw and striped appearance it was called *Anthus fuliginosus* by Vigors and Horsfield, and was said to be from Van Diemen's Land, collected by Mr. Robert Brown in 1804. As it seemed of interest I looked up the MSS. of birds collected by Mr. Robert Brown, and found the species described under *Alauda*, the locality, however, being only Van Diemen's Land, the date April, 1804. I might here record that I was much impressed with the number of birds secured by Mr. Robert Brown, all of them carefully described in minute detail with data, and at that date *nearly every one of them an unnamed species*. A series was presented to the British Museum, and an acknowledgment is preserved, yet none of them were ever named or described. This was fortunate for Gould, as many of his novelties appear therein, though Vigors and Horsfield described most of theirs from the same collector's material.

Almost simultaneously with Gould's proposal of a new genus *Calamanthus* for this species, Swainson described it as a new species and genus. As Swainson selected an invalid name, Gould's genus name, though of later date, has absolute usage. Vigors and Horsfield's specific name is also at present unchallenged, but the subspecific names are not exactly settled. As both Vigors' and Horsfield's and Swainson's names refer to Tasmanian birds they have generally been considered synonymic. In 1902 North separated the bird of the mainland as a distinct species, which he called *albiloris* on account of the white lores. A discussion arose as to whether this was a valid character, but it was admitted as subspecific. However, the following year a good form was named by Milligan from the Stirling Ranges, West Australia, as *C. montanellus*, while North, in his "Nests and Eggs," described a bird from Waratah, North Tasmania, and, noting differences, provided for it the name *C. diemenensis*. In my Reference List in 1912 I accepted all these as subspecifically separable and added a fifth:

Calamanthus fuliginosus carteri Mathews.

"Differs from *C. f. montanellus* in having the top of the head almost uniform reddish, contrasting with the colour of the back, and forming a cap. Underneath the abdomen and lower breast are darker and more richly coloured. The eye-stripe is more pronounced and the ear-coverts are rich reddish-brown. Broome Hill, West Australia."

These five were maintained in my 1913 "List," but Carter has written:

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“ Western Striated Field-Wrens were seen in mid-February, 1919, on scrubby sand plains about thirty miles south-east of Broome Hill, and, as usual, were very wary. When staying at Woolundra, about one hundred and fifty miles north of Broome Hill, in May, 1919, I saw and heard a *Calamanthus* on sand plain country, but failed to obtain a specimen, having no gun at the time. It would be interesting to identify the birds occurring there.”

Mr. Ashby has also written me: “ The birds I have from the Stirling Ranges, South-west Australia, differ so much from *fuliginosus* (typical) that I think one would be justified in giving it specific rank. I have another bird collected in the Wongan Hills which is smaller and buffer than the one from Jetermerrup.”

Upon reconsideration I find that structurally the Broome Hill birds show stouter bills, a little more fan-shaped tails and have smaller feet, the hind-claw shorter. It is possible that we have here not a subspecies, but a representative species, and that the western forms should be called:

Calamanthus montanellus montanellus Milligan.

Stirling Ranges, South-west Australia.

Calamanthus montanellus carteri Mathews.

Broome Hill district, South-west Australia.

I have examined the form from the Wongan Hills, and find it agrees with Ashby's diagnosis, and is worthy of subspecific differentiation, and therefore name it:

Calamanthus montanellus ashbyi subsp. n.

This does not help us with the eastern forms, however, as I find that the type of *A. fuliginosus* Vigors and Horsfield has *white* lores and that Swainson's description of his *Praticola anthoides* agrees most closely with that given by North for his *Calamanthus diemenensis*.

This would mean a reconstitution of subspecific names, thus:

Calamanthus fuliginosus fuliginosus Vigors and Horsfield.

Northern Tasmania (Eastern districts) and
Victoria.

Calamanthus fuliginosus anthoides Swainson.

North-west and Southern Tasmania.

This, however, must be confirmed by series of specimens and comparison of types.

CALAMANTHUS CAMPESTRIS.

FIELD-WREN.

(PLATE 435.)

- PRATICOLA CAMPESTRIS Gould, Proc. Zool. Soc. (Lond.), 1840, p. 171, July 1841: Near Adelaide, South Australia.
- Praticola campestris* Gould, Proc. Zool. Soc. (Lond.), 1840, p. 171, 1841; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 162, 1913.
- Calamanthus campestris* Gould, Birds Austr., pt. xvi., (Vol. III., pl. 71), Sept. 1st, 1844; *id.*, Handb. Birds Austr., Vol. I., p. 389, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 502, 1883; Ramsay, Tab. List Austr. Birds, p. 9, 1888; Hall, Key Birds Austr., p. 30, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 279, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 356, 1904; Mathews, Handl. Birds Austral., p. 71, 1908; Whitlock, Emu, Vol. IX., p. 197, 1910 (W.A.); S. A. White, *ib.*, Vol. XIII., p. 26, 1913 (S.A.); Chandler, *ib.*, p. 40 (Vic.); Campbell, *ib.*, Vol. XVIII., p. 257, 1919 (W.A.).
- Calamanthus isabellinus* North, Rep. Horn. Sci. Exped. Cent. Austr., Vol. II., Zool., p. 85, Feb. 1896: Central Australia; Hall, Key Birds Austr., p. 30, 1899; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 357, 1904; Mathews, Handl. Birds Austral., p. 71, 1908.
- Calamanthus rubiginosis* Campbell, Victorian Naturalist, Vol. XVI., p. 3, May 4, 1899: near Point Cloates, West Australia; *id.*, Nests and Eggs Austr. Birds, Vol. I., p. 281, 1901.
- Calamanthus campestris isabellinus* Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 280, 1901; Mathews, Nov. Zool., Vol. XVIII., p. 338, 1908; *id.*, List Birds Austr., p. 204, 1912; S. A. White, Emu, Vol. XIV., p. 188, 1915 (Cent. A.).
- Calamanthus howei* Mathews, Bull. Brit. Ornith. Club, Vol. XXV., p. 24, Nov. 30, 1909: Kow Plains, Victoria; Wilson, Emu, Vol. XII., p. 35, 1912.
- Calamanthus campestris campestris* Mathews, Nov. Zool., Vol. XVIII., p. 337, 1912; *id.*, List Birds Austr., p. 203, 1913.
- Calamanthus campestris ethelæ* Mathews, Nov. Zool., Vol. XVIII., p. 337, Jan. 31, 1912: Eyre's Peninsula, South Australia; *id.*, List Birds Austr., p. 203, 1913.
- Calamanthus campestris rubiginosus* Mathews, Nov. Zool., Vol. XVIII., p. 337, 1912; *id.*, List Birds Austr., p. 204, 1913; Carter, Ibis, 1921, p. 56.
- Calamanthus campestris howei* Mathews, Nov. Zool., Vol. XVIII., p. 337, 1912; *id.*, List Birds Austr., p. 204, 1913.



H. Grönvold, del.

Witherby & Co

CALAMANTHUS CAMPESTRIS.
(FIELD-WREN).

FIELD-WREN.

Calamanthus campestris dorrie Mathews, Nov. Zool., Vol. XVIII., p. 337, Jan. 31, 1912 :
Dorrie Island, West Australia ; *id.*, List Birds Austr., p. 204, 1913.

Calamanthus campestris wayensis Mathews, Nov. Zool., Vol. XVIII., p. 338, Jan. 31, 1912 :
Lake Way, Mid-Westralia ; *id.*, List Birds Austr., p. 204, 1913.

Calamanthus campestris macgillivrayi Mathews, Austral Avian Record, Vol. II., pt. 1., p. 8,
Aug. 2, 1913 : Mt. Arrowsmith, Wyurra, Broken Hill, New South Wales ; *id.*,
List Birds Austr., p. 204, 1913.

Calamanthus campestris hartogi Carter, Bull. Brit. Orn. Club, Vol. XXXVII., p. 6, Oct. 24,
1916 ; Dirk Hartog Island, West Australia ; *id.*, Ibis, 1917, p. 586 ; Whitlock,
Emu, Vol. XX., p. 179, 1921 ; White, *ib.*, p. 188, 1921.

Calamanthus campestris peroni Mathews, Ibis, 1917, p. 586, Oct. 10 : Peron Peninsula,
West Australia ; Whitlock, Emu, Vol. XX., p. 179, 1921.

DISTRIBUTION. Interior of Southern Australia from Broken Hill, New South Wales, Mallee
of Victoria, Eyre's Peninsula, South-west Australia to Shark's Bay and islands
adjoining thereto.

Adult male. Crown of head pale rufous with minute dark shaft-lines to the feathers ;
back, scapulars, and upper wing-coverts fulvous-brown ; bastard-wing, greater
coverts, and inner secondaries centred with dark brown and margined with fulvous,
or whitish ; flight-quills dark hair-brown, rather paler on the outer edges ; upper
tail-coverts inclining to buffy-white at the tips ; tail rufous-brown with a blackish
subterminal band, which is only slightly indicated on the middle feathers, and
white or buffy-white tips to the feathers ; sides of face rather paler than the
top of the head with white shaft-lines ; eyelids white ; a whitish supraloral streak
which extends over the eye on to the sides of the crown ; throat and fore-
neck dull white, streaked with dark brown or blackish ; breast and abdomen buffy-
white, becoming darker and inclining to fulvous on the sides of the body and under
tail-coverts ; thighs pale rust-colour ; axillaries and under wing-coverts cinnamon-
rufous ; under-surface of flight-quills hair-brown with pale edges ; lower aspect of
tail greyish-brown at the base followed by a blackish band and whitish tip. Bill
blackish-brown ; eyes brownish-yellow, feet ashy-brown. Total length 115 mm. ;
culmen 13, wing 55, tail 42, tarsus 22. Figured. Collected 60 miles west of
Oodnadatta, Centralia, on the salt-bush plains.

Adult male. Fore-part of head chestnut fading into greyish-brown on the nape, back,
scapulars, and upper wing-coverts, with blackish-brown centres to the feathers ;
flight-quills dark hair-brown with pale edges on both webs, tail rufous-brown at the
base, becoming blackish-brown on the terminal portion, with pale margins to the
feathers ; lores and eyelids whitish ; sides of face similar to the crown of the head
with white shaft-streaks to the feathers ; throat, breast, and sides of body whitish
with dark brown shaft-streaks to the feathers, which are absent on the lower abdomen ;
thighs, under tail-coverts, and under wing-coverts cinnamon like the axillaries and
inner margins of the quills below ; remainder of quill-lining dark hair-brown ;
lower aspect of tail grey at the base becoming blackish towards the tip. Bill and
feet horn-colour ; eyes light grey. Total length 120 mm. ; culmen 12, wing 54,
tail 45, tarsus 25. Figured. Collected on Dorrie Island, West Australia, on
the 15th of August, 1910, and is the type of *Calamanthus campestris dorrie*.

Adult male. Fore-part of head chestnut with dark centres to the feathers ; nape, hind-
neck, entire back, and scapulars blackish with grey margins to the feathers which
are much wider on the back ; upper wing-coverts rust-brown with dark centres

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to the feathers; the margins to the feathers of the bastard-wing and some of the flight-quills buffy-white; primary-coverts and flight-quills dark hair-brown; upper tail-coverts and base of tail rust-brown becoming blackish on the apical portion of the latter with white, or smoke-white tips to the feathers; lores, eyelids, and superciliary streak white; sides of face cinnamon-rufous; throat, breast and abdomen cream-white with dark shaft-lines to the feathers; thighs cinnamon-rufous; under tail-coverts buffy-white with dark central streaks; axillaries and lesser under wing-coverts cream-white, the greater series of the latter and inner margins of the quills below cinnamon-rufous; remainder of quill-lining dark hair-brown; lower aspect of tail similar to its upper-surface. Bill and feet brown; eyes yellow shading into brown. Total length 115; culmen 11, wing 55, tail 48, tarsus 22. Figured. Collected on the east side of Marbell Range, Eyre's Peninsula, South Australia, on the 31st of August, 1911, and is the type of *Calamanthus campestris ethelæ*.

Adult female. Crown of head rufous-chestnut with blackish centres to the feathers; back, scapulars and upper wing-coverts rust-brown with dark brown shaft-lines to the feathers; bastard-wing, greater coverts, and flight-quills hair-brown with whitish or rust-coloured margins; upper tail-coverts inclining to rufous with dark shaft-lines; tail-feathers rufous-brown with a blackish subterminal band and whitish tips to most of the feathers; a whitish supraloral streak which extends over the eye and along each side of the crown; sides of the face similar to the crown with whitish shaft-streaks to the feathers; eyelids white; throat and upper-breast whitish with a tinge of rufous and dark shaft-lines to the feathers, becoming more uniform on the abdomen and more rufous on the sides of the body, thighs, and under tail-coverts; the bases of the feathers on the under parts are dull black; axillaries and under wing-coverts pale rufous like the inner edges of the quills below, remainder of quill-lining dark hair-brown; lower aspect of tail rufous-brown, blackish subterminally and whitish at the tip. Bill dark horn, eyes warm brown, legs dull brown, feet darker. Total length 120 mm.; culmen 12, wing 53, tail 44, tarsus 21. Figured. Collected at Lake Way, Mid-west Australia, on the 21st of July, 1909, and is the type of *Calamanthus campestris wayensis*.

Adult male. General colour above sandy-brown, becoming more rufous on the fore-part of the head, the feathers everywhere having dark shaft-lines; upper wing-coverts more rufous than the back, some of the greater coverts have dark brown edges with white at the tips, which gives the appearance of a wing-bar; primary-coverts and quills pale brown fringed with whitish, inclining to rufous on the secondary-quills; upper tail-coverts uniform rufous; middle tail-feathers pale brown with a black streak towards the end and obsolete wavy cross-bars, the outer-feathers subterminally black with white tips and edged with white or sandy-buff on the outer webs; a white supraloral streak which extends over the eye and a spot under the eye of the same colour; lores and ear-coverts pale rufous with minute white shaft-lines; chin, throat, and fore-neck white with broad blackish shaft-streaks; abdomen white washed with sandy-buff, more intensely on the sides of the body and under-tail-coverts, the feathers on the sides of the body have median streaks of brown; under wing-coverts pale cinnamon-rufous; thighs rufous. Total length 123 mm.; culmen 12, wing 52, tail 44, tarsus 22. Collected at Point Cloates, Mid-west Australia, and is *Calamanthus rubiginosus* Campbell.

Adult female. Similar in every respect to the adult male but with the characters a little more faintly pronounced. Total length 123 mm.; culmen 12, wing 52, tail 45, tarsus 22. Collected at Point Cloates, Mid-west Australia.

This bird appears to differ from *C. campestris* chiefly in being paler above, not so much rufous in the plumage, and the under-surface whiter.

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Nest. Globular in form, with an entrance in the side, being outwardly constructed with dried grasses and lined with feathers. Places beneath salt-bush shrub or on the bare ground.

Eggs. Clutch, three or four. Uniform pale chocolate, darker on the larger end, forming in some specimens dull clouded caps or indistinct zones. 19-21 mm. by 15-16.

Breeding-season. July or after rains in summer or winter.

GOULD also described this species, and his notes read: "Is a native of Southern and Western Australia, where it inhabits open plains and scrubby lands, particularly such as are interspersed with tufts of coarse grasses. It has never yet been discovered within the colony of New South Wales. Like its near ally of Tasmania it is a rather shy and recluse species, running mouse-like over the ground among the herbage with its tail perfectly erect, and is not easily forced to fly, or even to quit the bush in which it has secreted itself. Its song is an agreeable and pretty warble, which is poured forth while the bird is perched upon the topmost twig of a small bush. This species also emits so very powerful an odour that my dog frequently pointed at it from a very considerable distance."

Captain S. A. White has written me: "This bird is fairly numerous even to-day in the type locality (around Pt. Augusta, South Australia). They frequent the salt and blue bush plains, moving over the ground in a mouse-like manner; they are naturally shy birds, but at times will sit upon a bush and pour out a wonderful sweet little song; they build their nests almost on the ground, but if it is only touched they will pull it to pieces. On Eyre's Peninsula I met with a bird differing from the others found in South Australia, running amongst the low heath-like bushes on a stony ridge. Some time afterwards I met with it again some hundreds of miles to the south but in almost the same class of country. In Central Australia I met with another form in many parts, almost always in the salt bush country and very shy."

Mr. Edwin Ashby writes: "This bird occurs on the low bushes that grow on the flats adjoining the sandhills about twenty-five miles north of Adelaide at a place called St. Kilda, and I have also seen it in the low ti-tree flats adjoining the mallee near Goulwa. Mr. Love sent me several skins of the Central Australian form from Leigh's Creek, South Australia, with the statement that in suitable localities they were fairly numerous."

Captain S. A. White has written me: "Were found all through the Gawler Ranges; on one occasion a nest containing two naked young birds was found; the nest which was composed of dry grasses lined with softer material was placed on the ground under a salt bush and was dome-shaped but rather flattened on the top, and although the nest was only glanced into to see the contents the old birds pulled the nest to pieces and carried all the material

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away, and only the two poor unfortunate young birds which lay on the ground covered in ants one could never tell there had been a nest on the spot. After they had destroyed their home the male bird mounted on the top of a dry salt bush twig close by and sang till he nearly lost his balance with excitement."

Mr. J. W. Mellor writes: "This species is sparsely distributed over Eyre Peninsula, where it is a bird that keeps to the low bushes and the ground, taking cover in the thick masses of leaves and vegetation when disturbed."

These two notes refer to the form I separated as *Calamanthus campestris ethelæ*, writing: "Differs from *C. f. campestris* in having greenish-brown edges to the feathers of the back, and in having the under-surface white with dark centres to the feathers." This form was differentiated by Captain S. A. White at sight, while another form was discovered during the investigation of the Mallee fauna by the Victorian ornithologists, and I named it *Calamanthus howei*, writing: "This form seems to be intermediate between *C. montanellus* and *C. campestris* Gould. From the former it differs in having the ear-coverts and crown of the head reddish; from the latter in having a longer bill, the head less rufous, and a much more pronounced brown streak on the feathers of the back."

Previously to either, and the first form to be named as distinct from Gould's species, was *Calamanthus isabellinus* by North given to a Central Australian bird on account of its pallid appearance. He concluded afterward that it was simply a pale race of *C. campestris* and this has been accepted by all Australian workers, even A. J. Campbell as long ago as 1901 regarding it as a subspecies only.

Wilson recorded under the name *Calamanthus howei* from the Mallee: "These timid little creatures we found to inhabit the dry salt bush plains around Kow Plains and North Dam, and had great difficulty in obtaining specimens. We obtained four birds in all, and on dissection we found that if not already breeding they were very close upon it. The birds we obtained were all secured at the foot of a copai hillock where two species of salt-loving plants grew. When flushed they sought refuge in the prickly salt bush, from which it was exceedingly difficult to dislodge them. The only note we heard them utter was given in a low tone, and was somewhat similar to the commonest call of *C. albiloris*." Later I named the Broken Hill form *Calamanthus campestris macgillivrayi* as differing from *C. c. isabellinus* in having a longer bill, and in having the head much redder, and the ear-coverts red.

This completes the tale of the eastern forms but there is quite a history in connection with the western ones. Kearland has written: "Although the Field *Calamanthus* is generally found amongst coarse grass, heath and scrub in moist localities, it seems to thrive equally well in the dry, sandy parts of West Australia. They were frequently disturbed amongst the samphire,

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saltbush and grass near the camel depot, and morning and evening enlivened our camp with their songs, as, perched on some elevated spot, one would pour forth its daily carol. Several nests were found during August, two of them being discovered lying on small patches of bare ground, in such exposed positions as to convey the idea that they had been cast away by some passing oologist. Mr. Charles F. Wells found another beneath the shelter of a low salt bush. All the eggs taken were of the usual colour and character." Apparently this refers to a yet unnamed subspecies.

When Mr. Tom Carter sent the Point Cloates bird to A. J. Campbell the latter described it as *C. rubiginosus* on account of its rufous colouring, lacking the white tips to the tail and the whitish line over the eye. Succeeding notes give the further history of this series.

Mr. Tom Carter's notes read: "The Rusty-red Field-Wren (North-west aboriginal name *Nee-Antee*) is common in low scrub, spinifex, etc., about Point Cloates and the North-west Cape, but was never noted inland, nor about Carnarvon (200 miles south of Point Cloates). It has a rather loud cheerful song, uttered from the top of a low bush, but the birds are shy and keep much under cover of low scrub and other vegetation of the coast sandhills. This species appears to breed at any season after rainfalls, as eggs were observed about Point Cloates in various months of the year. The nest is dome-shaped with side entrance near the top, built mostly of dry grass and lined with some feathers. It is usually built under shelter of a low bush, or in a tuft of coarse grass. The clutch of eggs is usually three. June 21, 1902: Three fresh eggs. July 10, 1900: Fledged young."

In the *Ibis*, 1921, he added: "Rusty-red Field-Wren were seen at Maud's Landing, and specimens obtained during the last week of August, 1911; also at Maud's Landing and Point Cloates at the same time in 1913, and in early July in 1916, when a breeding male was obtained on 7th July at Point Cloates. These birds breed immediately after any heavy rainfall, irrespective of the season."

In the *Ibis*, 1917, he had written a fine account about two other subspecies named and which is here transcribed:

"*Calamanthus campestris hartogi* Carter. The Dirk Hartog Field-Wren was plentiful on the island, and is quite distinct from the *Calamanthus* occurring on the Peron. The habits and song are the same as those of *C. rubiginosus* which occurs further north. The birds are mostly found in fairly open scrub, and were not seen in the dense dark growths of the large wattle brushes. The pleasant song is almost invariably uttered when the bird is perched on the topmost twig of a bush, a dead twig seeming to be chosen by preference, and both sexes are often seen in this position. Upon any alarm, as at the approach of someone, the birds dive down into the bush, and either run or hop very

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rapidly along the ground, and are not easily flushed again. The tail is almost always carried very erect, and when one of these birds is seen for a moment, it can easily be mistaken for an *Amytornis*. Although these birds are usually very shy, they can sometimes be 'chirped' close up. One alarm-note is somewhat like the alarm 'churr-r-r' of *Oreoica cristata*. Another resembles the 'han-han-han' of the English Herring-Gull when heard at a distance. *Calamanthus campestris peroni*. The Peron Field-Wren is quite distinct from the Dirk Hartog bird. The specimens obtained of *Calamanthus c. peroni* are quite unlike any of the long series obtained of *C. c. hartogi*, and more closely resemble *C. c. rubiginosus* from Point Cloates and the North-west Cape districts (200 to 300 miles north of Shark Bay) and *Calamanthus c. wayensis* from the Day Dawn district (300 miles south-east and inland from Shark Bay). A careful comparison of skins in the Perth Museum from these two districts with the Peron birds shows that the Peron birds are much more rufous in general colouring than either of them, and are especially of a richer rufous on the crown. The white superciliary stripe is much more pronounced in *C. c. peroni*, as also are the striations on the mantle. The Peron birds have larger and stronger bills, and are bigger made birds than those from Point Cloates or Day Dawn. *Calamanthus campestris hartogi* is much duller in general colour than *C. c. peroni*, and is a smaller bird, resembling more the form from Dorrie Island (*C. c. dorrie*). A single female specimen of *Calamanthus*, obtained on the mainland (Edel Land) at the south end of Useless Inlet, differs from both *C. c. hartogi* and *C. c. peroni*, but most resembles the former. A series of skins is required from there before a definite opinion can be formed. The subspecies on the Peron was not nearly so common as the form on Dirk Hartog. Their habits and song are similar but the Peron birds appeared to be much more wary and difficult to obtain. Sometimes they run along the ground, with tail in a horizontal position, at great speed, on the bare spaces of sand between the bushes, and dodge about so that it is often difficult to keep them in sight, even when one runs after them. At other times they hop with tails erect, and on several occasions, having only caught a momentary glimpse of a bird, I mistook it for an *Amytornis*. No *Calamanthus* has ever been observed in the vicinity of Carnarvon, at the mouth of the Gascoyne River, where I have systematically observed and collected birds since 1886. Nor has any *Calamanthus* been seen south of Maud's Landing (60 miles north of Carnarvon) where *C. c. rubiginosus* appears to find its southern coastal limit."

In spite of such clear statements so lucidly expressed Whitlock and A. J. Campbell have both recently cast doubt upon these forms, arguing upon supposition alone.

I had separated the Dorrie Island form as *C. c. dorrie*, writing: "Differs

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from *C. c. howei* in having less red on the crown and being paler above"; and the Lake Way, West Australia, form as *C. c. wayensis*, stating: "Differs from *C. c. campestris* in having the head deeper rufous and the back slightly darker and less streaked; the flanks also showing buffy instead of uniform."

It is almost impossible with the series yet available to dogmatise, but it seems that there may be an eastern and a western species representing each other and never meeting or intergrading.

The names would then be arranged thus:

Calamanthus campestris campestris Gould.

South Australia (Port Augusta).

Calamanthus campestris ethelæ Mathews.

Eyres' Peninsula, South Australia.

Calamanthus campestris macgillivrayi Mathews.

Broken Hill district, New South Wales.

Calamanthus campestris isabellinus North.

Central South Australia.

Calamanthus campestris howei Mathews.

Mallee of Victoria.

The species name of the western one would be:

Calamanthus rubiginosus Campbell

and the subspecies at present admissible:

Calamanthus rubiginosus rubiginosus Campbell

Point Cloates district, Mid-west Australia.

Calamanthus rubiginosus dorrie Mathews.

Dorrie Island, West Australia.

Calamanthus rubiginosus wayensis Mathews.

Lake Way district, West Australia.

Calamanthus rubiginosus hartogi Carter.

Dirk Hartog Island, West Australia.

Calamanthus rubiginosus peroni Mathews.

Peron Peninsula, West Australia.

Apparently there are many more subspecies to be differentiated. As to the value of structural differences this species shows more differences from *Calamanthus* than does *Hylacola*, and it is advisable to introduce a new sub-generic name, *Eremianthus*, selecting *Calamanthus campestris wayensis* Mathews as the type. The bird has the bill stouter, the wing formula has the first primary less than half the third, the third to the tenth subequal and longest and the secondaries equalling these; the tail nearly even and shorter, and the feet more delicate, the tarsus apparently booted and the toes more slender; the hind-toe normal, not at all elongated.

GENUS—CINCLORHAMPHUS.

CINCLORAMPHUS Gould, Synops. Birds. Austr.,
 pt. iv., App., p. 4. April 1, 1838. Type
 (by original designation) *Megalurus cruralis*
 Vigors & Horsfield.

Also spelt—

Cynclorhamphus Bonaparte, Consp. Gen. Av., Vol. I., p. 279, 1850.

Cintorhamphus "Wiegmann" Gray, Handl. Gen. Sp. Birds B.M., pt. I., p. 205, 1869.

PTENOEDUS Cabanis, Mus. Hein, Vol. I., p.
 39 (after October 23), 1851. New name
 for *Cincloramphus* Gould. Type ... *M. cruralis* Vigors & Horsfield.

LARGER birds with long stout bills, long pointed wings with long tertials, long wedge-shaped tail of pointed feathers and very long strong legs and strong feet. The sexes of very dissimilar size.

The bill is about the same length as the head, in some males apparently a little longer, in some females a little less; the culmen ridge angulate, the sides rapidly expanding basally, anteriorly compressed, the tip only a little decurved but showing the posterior notching; a deep nasal groove is seen with linear nostrils strongly operculate; the lower mandible similarly has an attenuate anterior portion and posterior divergent rami for about half its length, the interramal space feathered; there are two rictal bristles but no nasal bristles. The wings are long, the primaries narrow, first primary very minute, the second longest, the third, fourth and fifth almost equal, the rest decreasing rapidly, the secondaries equal to the eighth, while the elongate tertials equal the four longest primaries in length.

The tail is long, nearly as long as the long wings; it is strongly wedge-shaped, the feathers narrow and pointed, the outer webs very small. The legs are long and stout, more than twice the length of the culmen, the tarsus showing six strong scutes anteriorly and bilaminate posteriorly; the toes long, claws short, hind-toe stout with long strong curved claw; hind-toe and claw equal to mid-toe and claw, the mid-toe alone as long as inner and outer toes, which are subequal with their claws.



H. Grönvold. del

Witherby & Co.

CINCLORHAMPHUS CRURALIS
(BROWN SONG-LARK)

CINCLORHAMPHUS CRURALIS.

BROWN SONG-LARK.

(PLATE 436.)

MEGALURUS CRURALIS Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 228, Feb. 17, 1827: New South Wales.

Megalurus cruralis Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 228, 1827.

Cinclorhamphus cruralis* Gould, Synops. Birds Austr., pt. iv., App. p. 4, April 1838; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 150, Dec. 1838; *id.*, Birds Austr., pt. xix., (Vol. III., pl. 74), June 1st, 1845; *id.*, Handb. Birds Austr., Vol. I., p. 394, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 498, 1883; Ramsay, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. I., p. 1,098, 1887; Tab. List Austr. Birds, p. 10, 1888; Hall, Key Birds Austr., p. 29, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 275, 1901; Hall, Emu, Vol. I., p. 109, 1902 (N.W.A.); Hill, *id.*, Vol. II., p. 163, 1903 (Vic.); Berney, *id.*, Vol. IV., p. 44, 1904 (N.Q.); North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 331, 1904; Hartert, Nov. Zool., Vol. XII., p. 225, 1905 (N.W.A.); Hill, Emu, Vol. VI., p. 179, 1907 (Vic.); Mathews, Handl. Birds Austral., p. 72, 1908; Ogilvie-Grant, Ibis, 1909, p. 681 (W.A.); Crossman, Emu, Vol. IX., p. 88, 1909 (W.A.); Hall, *ib.*, p. 128, 1909 (Eyre's Peninsula); Whitlock, *ib.*, p. 197, 1910 (W.A.); Wilson, *ib.*, Vol. XII., p. 35, 1912 (Vic.); Chandler, *ib.*, Vol. XIII., p. 40, 1913 (Vic.); Cleland, *ib.*, Vol. XVIII., p. 280, 1919 (N.S.W.); Whitlock, *ib.*, Vol. XX., p. 179.

Cincloramphus cantatoris Gould, Proc. Zool. Soc. (Lond.), 1842, p. 135, Feb. 1843: South Australia=Port Phillip, Victoria; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 162, 1913.

Cincloramphus cantillans Gould, Birds Austr., pt. xxviii. (Vol. III., p. 75), Sept. 1st, 1847, emendation of preceding only; *id.*, Handb. Birds Austr., Vol. I., p. 395, 1865; Diggles, Ornith. Austr., pt. xii., 1867; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888.

Cincloramphus cruralis cruralis Mathews, Nov. Zool., Vol. XVIII., p. 338, 1912; *id.*, List Birds Austr., p. 204, 1913; Belcher, Birds Geelong, p. 257, 1914.

Cincloramphus cruralis cantatoris Mathews, Nov. Zool., Vol. XVIII., p. 338, 1912; *id.*, List Birds Austr., p. 204, 1913; Ashby, Emu, Vol. XVI., p. 231, 1916; S. A. White, *id.*, Vol. XVIII., p. 21, 1918.

* Also spelt *Cincloramphus*.

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Cincloramphus cruralis clelandi Mathews, Nov. Zool., Vol. XVIII., p. 338, Jan. 31, 1912 :
Perth, West Australia ; *id.*, List Birds Austr., p. 205, 1913.

Cincloramphus cruralis rogersi Mathews, Nov. Zool., Vol. XVIII., p. 338, Jan. 31, 1912 :
Derby, North-west Australia ; *id.*, List Birds Austr., p. 205, 1913 ; *id.*, South
Austr. Ornith., Vol. 3, p. 140, 1918.

DISTRIBUTION. Australia generally, but rare or absent in extreme northern districts.

Adult female. General colour above hair-brown with pale edges to the feathers, which vary from dark ochreous to grey or whitish tinged with grey on the hind-neck and upper tail-coverts ; inner webs of flight-quills greyish-white on the basal portion ; tail-feathers margined with white ; lores whitish ; a dark spot in front of the eye ; ear-coverts pale brown with white shafts to the feathers ; chin and throat whitish with dark brown spots to some of the feathers on the latter ; breast, abdomen, sides of body and thighs drab-grey ; middle of abdomen, axillaries and under wing-coverts soot-brown, marginal-coverts and inner edges of quills below greyish-white, becoming darker towards the tips of the latter ; under tail-coverts isabelline with dark shaft-streaks ; lower aspect of tail pale greyish-brown with pale margins to the feathers. Bill horn, lower mandible whitish, tarsus brown, feet darker. Total length 185 mm. ; culmen 14, wing 86, tail 74, tarsus 30. Figured. Collected at Lake Yanchep, in West Australia, on the 14th of November, 1904.

Adult male. General colour of the upper-surface dark hair-brown, with pale margins to the feathers, which vary in colour from ochreous to greyish-white, including the top of the head, back, wings and tail ; fore-part of the head, hind-neck, sides of neck, and upper tail-coverts tinged with grey ; inner webs of flight-quills for the greater part greyish-white on the basal portion ; a supraloral streak and eyelids whitish ; the space in front of the eye black and the feathers bristly in texture ; sides of face smoke-brown more or less intermixed with greyish-white ; chin greyish-white ; throat soot-brown, some of the feathers tipped with greyish-white ; breast dark olive-brown ; middle of abdomen soot-brown, becoming paler on the sides of the body ; thighs and under tail-coverts ochreous-buff with dark centres to some of the feathers ; axillaries and under wing-coverts soot-brown with pale tips to the marginal coverts ; greater series of under wing-coverts and under-surface of quills pale grey, becoming darker towards the tips of the latter ; lower aspect of tail greyish-brown. Bill black, tarsus brown, feet darker. Total length 240 mm. ; culmen 15, wing 109, tail 91, tarsus 41. Figured. Collected at Derby, North-west Australia, and is the type of *Cincloramphus cruralis rogersi*.

“ *Young males* resemble the adult male in winter plumage, but the feathers of the upper-parts, including those of the rump, also the upper tail-coverts, are margined with sandy-fulvous ; an indistinct collar on the hind-neck velvety-brown, with dark brown centres to the feathers ; over the eye a fulvous stripe ; chin and throat dull white, the latter mottled with dark brown ; remainder of the under-surface dull brownish-white with small darker brown centres to the feathers, except those on the side of the breast, which have only indistinct streaks.” (North.)

Nest. Cup-shaped, filling a hole in the ground, near a tuft of grass, and constructed of dried grass, lined with softer material, measurement 3 inches by 2 deep.

Eggs. Clutch, three or four. Ground-colour salmon-pink, marked all over with, but forming a zone at the larger end, of pinkish-red. 23–24 mm. by 17.

Breeding-season. June to December or January (February).

BROWN SONG-LARK.

COLLECTED in New South Wales by Caley, this species was described by Vigors and Horsfield under the genus *Megalurus* when they reported upon the birds in the collection of the Linnean Society. The genus *Megalurus* had just previously been proposed by Horsfield for a Javan bird, but Gould concluded this was not congeneric and introduced for it the new genus *Cincloramphus*.

Caley's notes read: "These birds are birds of passage. They appear in no great numbers. They alight on the top of dead trees. The note is loud and harsh."

Gould wrote: "As there are two, if not three, species of this very singular genus inhabiting the southern portion of Australia, which bear a great resemblance to each other, it becomes necessary to state that this is the one commonly seen during the months of spring and summer in all the open districts of New South Wales, where it arrives in August, and after performing the task of incubation, departs again in January or February. Open downs, grassy flats, and fields of corn are its favourite places of resort. It is certainly one of the most animated of the Australian birds. Had I not visited Australia and personally studied its habits, my credulity would have been severely taxed upon being informed that the two birds, differing so greatly in size, were the male and female of the same species, many genera having been instituted upon much slighter grounds of difference; I had abundant proofs, however, that such is really the case, having seen many of the nests and eggs with the parent bird in the act of incubation during the two seasons I spent in the country. In most of its habits and in its economy this bird closely assimilates to the Skylark of Europe. During the early months of spring it trips over the ground in the most sprightly manner with its tail nearly erect; mounts on the dead limbs of trees and the fences of enclosures, and runs along them with the greatest dexterity; at this season of the year also the male may be frequently seen running beside its diminutive partner, and so busily engaged in pouring forth his song for her amusement as to be apparently unconscious of the presence of any other object. After the female has chosen the place for her nest, which is always on the ground, the male, like the Skylark, frequently mounts in the air with a tremulous motion of the wings, and after cheering her with his animated song, descends again to the ground or skims off to a neighbouring tree, and incessantly pours forth his voluble and not unpleasing notes. I found it very abundant in all the Upper Hunter districts, as well as in all the surrounding country, both to the north and south; I killed numerous examples of both sexes, but not one male with the throat and under-surface black, like specimens I have seen from Port Philip and South Australia, and which I consider to be specifically distinct."

Under the name *C. cantillans*, an emendation of *C. cantatoris*, the name

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he had described this form under, Gould then recorded : "Specimens killed at Port Philip in South Australia and others procured at Port Essington are precisely similar ; but they differ from *C. cruralis* in their smaller size and in their darker colouring, a character which is confined to the male sex, and which is, I believe, strictly a summer livery. At Swan River the individuals are still smaller, and like the *C. cruralis*, are never so black on the breast. I possess no information respecting the habits of the Port Phillip bird. The following notes are the result of Gilbert's observations of the bird in Western Australia : 'The *Cincloramphus cantillans* is a summer visitor, a remarkably shy and wary species, and a most difficult bird to procure, from its generally perching on a part of a tree whence it can command an uninterrupted view all round, rarely admitting any one to approach it within gunshot. On being flushed from the ground it immediately takes to a tree, where, with its tail erect and its head stretched out to the full extent of its neck, it presents a most grotesque appearance. It often ascends perpendicularly to a considerable height in the air, and then floats horizontally without any apparent motion of the wings to the distance of three hundred yards. While flying it utters a most disagreeably harsh and grating note, which is exchanged for an inward, rather plaintive tone when perched among the branches.' "

Mr. Thos. P. Austin has written me from Cobbora, New South Wales : "Strictly migratory, a few pairs arriving in favourable springs, but may not be seen again for years at a stretch. During the spring and summer of 1914 and 1915 it was more numerous here than I have ever known before, and yet I doubt if there were more than fifty birds in the locality, and they were only to be met with in three favourable situations, and all had departed by the end of February. It frequents paddocks where there is plenty of long grass, especially of a swampy nature, and cultivated areas. Although they spend most of their time upon the ground they (especially the male) are very frequently seen perched upon stumps, fences, and dead trees. About nesting-time the male will often be noticed calling from a thick limb of a dead tree, and if approached he will most probably crouch down rather than take flight. The male sings most as he rises in the air, with a trembling motion of the wings, but the flight of the female upon these occasions is more of an undulating character, and they rank amongst our best songsters, having a loud, cheerful song, which may be heard at any time of the day, and at a great distance, but it always appears to be heard at its best on a bright, still, sunny morn as the bird rises higher and higher into the air, pouring forth its clear rich notes as though its life was nothing but joy, when it will suddenly cease singing and dart to the ground. Although I know that some observers state that, when breeding, the male warns the sitting female of approaching danger, and

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she at once sneaks off the nest, such has not been my experience—in fact it has always been the reverse, as I have found them to be very close sitters. The first nest I found was over twenty years ago, on Barwon Park Station, Winchelsea, Victoria, just about Christmas time, while driving in a buggy. I flushed the sitting female from the nest within a foot of one of the front wheels. A few of them were breeding on a flat near my house in 1914, but the only occasion that I went there purposely to look for their nests was on New Year's Day with a young friend. We rode on horseback, and walking our horses about the flat, in all we found three nests and in each case the female was flushed almost at our horses' feet; in one case the bird was no sooner off the nest than my horse put his foot on it. But as the males do fly about singing, it is quite possible that some of the females did take warning, and leave their nests without my knowledge. The nests are rather loosely constructed, composed of dry grass, placed in a slight depression in the ground, either in or beneath a small tussock. Three eggs usually form a clutch, and they are very late breeders in this district. I have never seen a nest before December, but I have a clutch of their eggs in my collection found in Queensland as early as August 23rd."

Captain S. A. White's notes read: "This fine bird comes down to the Adelaide Plains in the spring and nests in the crops and grass paddocks. It is a quaint bird, for it mounts from the ground when flushed singing as it goes, then comes down and alights on a post or stump and elevates its tail two or three times. The female is very noticeable being so small in comparison with the male. This bird appears in the early spring on our Adelaide Plains where the male birds sing loudly, rising to a great height singing all the way (the notes resemble the words: 'Do you want to go to Egypt' repeated many times), then they will come almost straight down with wings extended, making a chucking sound. They remain sometimes into the early winter, but become silent after nesting; the female is a shy, silent bird and both sexes run rapidly over the ground; if you go to where one has alighted upon the ground, you will find it has run rapidly with head down for some distance, and will then look up, bob its tail up and down, and make another run and by the time you reach where it settled the bird will be far out of range. It prefers the open grassland to any other. Its range extends far into the interior during good seasons."

Mr. Edwin Ashby's account states: "A very common bird in all the wheat paddocks from the South of this State (South Australia) to north of Port Pirie (further north I have not been). It is very fond of sitting on fence or telegraph posts near wheat fields, holding its head very high, elevating its tail in a most grotesque fashion and pouring forth its song which, while in

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character like that of a Skylark, is a sort of parody thereon, the tones being intermixed with peculiar rasping notes."

Mr. Sandland notes: "Common at Balah, South Australia, from July to January."

Mr. E. J. Christian also writes: "This is the more common of the two species of *Cinclorhamphus* which visit us in this district (Avoca River, N. Victoria). Both are found practically in all the States except Tasmania. Generally these birds arrive here in September and depart north in February, sometimes March. *C. cruralis* is generally the first to arrive and this year (1908) I saw the first on 10th August, while I did not see *C. rufescens* till the 26th August. Last year the dates were later, the former on September 1st, the latter about September 30th. The present species is generally found here in the coarse grasses of the swampy country and it is in these places where I have generally found the nests, but have never found the eggs, always two or three young ones in their early stages. One day last year when riding through this sort of country, I nearly went into a nest; I pulled off it as I thought I could see some big hairy caterpillars, but upon dismounting found that they were three newly-hatched young and as the feathers were whitish and hairlike, they looked very peculiar. When disturbed the male flies up, not very high, singing incessantly; it is not a pretty song, and is rather harsh; it does not stay up very long and soon settles in the thick growth. In 1908-1909 this species stayed with us all the winter on account of mildness, and on Nov. 29, 1909, I found a nest with three eggs."

Mr. F. E. Howe adds: "At Picola on the Murray River, in the Christmas Holidays, 1909, with a shooting party in some 'Lignum' in a dried up swamp at every few strides we started up this bird. The flight is stronger and quicker than that of its congener. At Ferntree Gully I noticed one carrying a few stems; it perched on a stump and, although I watched it for half an hour, it never stirred from the post."

Mr. J. W. Mellor's notes read: "Commonly known as the Brown Skylark, 'want to go to Egypt,' the latter being the words repeated by the cock bird in a loud vibrating way, as it sits upon some post or prominent dead piece of wood within a few feet of the ground preparatory to taking its long and high flight into the air, and in this position it puts its tail erect and with head thrown back and throat extended the bird carols forth in quick succession a repetition of these words, and then mounts up still singing the same; the words also resemble the sound 'cock-shet-a-wee-loo'; it makes this call in the spring and summer and is apparently a mating song while breeding."

Mr. Tom Carter forwards me a note: "The Brown Song-Lark is plentiful through the mid-west of West Australia. They are common about the

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Gascoyne and North-west Cape districts, being most numerous after the winter rains, when their loud cheerful song can be heard everywhere. The breeding-season is from June to September. About Broome Hill and most of the south-west they are by no means common, but no doubt will become so as the timber is cleared away and the land becomes open, as they do not occur in heavy timbered country."

Mr. J. P. Rogers wrote me: "When going up Jegurra Creek some of these birds were seen forty-five miles south of the Fitzroy River. Two males were seen on a plain four miles west of Mungi. On the plains along the Fitzroy River in the wet season this is a common species."

Bernard has recorded: "A common summer resident in North Queensland. We have them here, too, through most winters, but in greatly reduced numbers, and in numbers, too, they vary one year with another. This winter (1904) (end of July) they are more numerous than usual for the time of year; last winter they were entirely absent, with the exception of an odd bird, while through the winters of 1901 and 1902 there were a good many about. But our summer larks and our winter larks are different individuals, the former moving off in April or May, and the latter taking possession within a week or two, but in the interval there is a total absence; but September again finds the winter birds slipping away until we have practically none in November, and thus we remain until our summer lot comes back to us during December. They nest in the district. I have found eggs and young squabs through February and March, my earliest date being 8th February (four eggs slightly incubated). I once found a nest with five eggs (14th February). The male is rather grotesque-looking, with long legs and big feet, and he does not add to his appearance when he sits on the top of a fence-post with his tail stuck up at right angles to his back—an attitude that doesn't seem decorous. His song, too, is just such as you would expect from him, quaint and unmusical, but, being in no way discordant, is pleasant to listen to. Although the winter birds sing while with us they do not don the black breast."

When Witmer Stone reported upon the Gouldian types in Philadelphia, a revision of which has now become necessary and is being undertaken, he concluded: "*Cincloramphus cantatoris* Gould, South Australia. *C. cantillans* was substituted as a better name in the Birds of Australia 17264 (1093). 'West' = South, Australia is the TYPE, as Gould figured the bird from Port Phillip, 'South' Australia. As explained above, the misreading of a 'W' for an 'S' in the manuscript catalogue would easily account for such discrepancies." Through inadvertence "South Australia" was therefore given as the type locality in my List of the Birds of Australia, whereas obviously it should have

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been Victoria, as Port Phillip is in that State, but in Gould's time included in South Australia.

Again, it seems likely with the new information available that the "W" was correct, a better specimen collected by Gilbert having been sent to Philadelphia than one from Port Phillip.

When I drew up my "Reference List" I examined a fair amount of material, and was compelled to endorse Gould's conclusions that there were differences in the coloration and size, the Southern Australian birds having fully black underside in full breeding plumage, a state elsewhere rarely met with, also that the northern birds differed as did the western ones, noting the features quite independently, so that there can be little doubt of their constancy.

I wrote "*Cincloramphus cruralis clelandi* differs from *C. c. cruralis* in being much darker below. Perth," while Gould had stated that they were also smaller. The northern one I distinguished as *C. c. rogersi*, stating: "Differs from *C. c. cruralis* in being paler on the under-surface"; while again Gould contended they were smaller.

These four were admitted in the "Reference List" 1912 and in my 1913 "List," and no alteration is necessary save in connection with the type locality of *C. cantatoris*.

The forms to be recognised still are:

Cinclorhamphus cruralis cruralis (Vigors and Horsfield).

Queensland, New South Wales and (?)

Northern Victoria.

Cinclorhamphus cruralis cantatoris Gould.

Southern Victoria: South Australia.

Cinclorhamphus cruralis clelandi Mathews.

South-west Australia.

Cinclorhamphus cruralis rogersi Mathews.

North-west Australia and Northern Territory.

GENUS—MACLENNANIA.

MACLENNANIA Mathews, Austral Av. Rec.,

Vol. III., pt. 5, p. 127, December 28,

1917. Type (by original designation) *Cincloramphus mathewsi* Iredale.

I INTRODUCED this genus name in honour of William Rae Maclennan, who was instrumental on account of Dr. W. Macgillivray in the discovery of the North Queensland Claudie River novelties. The genus had been recognised by most workers and as the genus name *Ptenædus* Cabanis had been used. It was shown that that name, however, had been proposed simply as a substitute of more classical formation for *Cincloramphus* Gould, that being a hybrid of Latin and Greek roots. The eccentricities of would-be purists is well seen in their action in connection with another compound, *Colluricincla*, which became *Collyriocichla*, while *Cincloramphus* and *Cinclosoma* were left unchanged, but these each showed as palpable an erroneous formation. As this genus has been confused with the preceding, the distinguishing features may be noted, though the differences are so marked they should never have been put together by ornithologists separating the other Gouldian genera. As instance, *Maclennania* shows a short first primary, whereas *Cincloramphus* has the first primary so minute that it is hidden by coverts, and the second primary appears to be the longest.

The genus is composed of smaller birds with shorter bills, more rounded wings, rounded long tail and shorter stout legs and feet. The sexes are a little dissimilar in size.

The bill is shorter than the head, similar to that of the preceding but correspondingly deeper.

The wing formula is very different, the first primary short, a little less than half the length of the second, which is subequal to the third, fourth and fifth and longest, the rest successively a little shorter until the ninth, which is equalled by the secondaries, while the tertials are elongate and nearly equal the primaries in length but are broader feathers.

The tail is long and rounded, the feathers with pointed tips, but the outer webs not notably reduced in size.

The legs are shorter and stout, but not so strong as in the preceding genus, the tarsus showing five scutes anteriorly, and posteriorly bilaminate; the toes weak and slender.

Order PASSERIFORMES.

No. 518.

Family CINCLOSOMATIDÆ.

MACLENNANIA MATHEWSI.

RUFOUS SONG-LARK.

(PLATE 437.)

CINCLORAMPHUS RUFESCENS MATHEWSI Iredale, Bull. Brit. Orn. Club, Vol. XXVII., p. 97, May 26, 1911 : Yalgoo, West Australia.

Anthus rufescens Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 230, Feb. 17, 1827 : New Holland=New South Wales.

Not of Temminck, Manuel d'Ornith., 2nd ed., Vol. I., p. 267, 1820.

Cincloramphus rufescens Gould, Birds Austr., pt. xxvi. (Vol. III., pl. 76), March 1st, 1847 ; Diggles, Ornith Austr., pt. xii., 1867 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 500, 1883 ; Ramsay, Tab. List Austr. Birds, p. 10, 1888 ; Hall, Key Birds Austr., p. 29, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 276, 1901 ; Hall, Emu, Vol. I., p. 109, 1902 (N.W.A.) ; Hill, *id.*, Vol. II., p. 163, 1903 (Vic.) ; Milligan, *id.*, Vol. III., p. 17, 1903 (S.W.A.) ; Berney, *ib.*, Vol. IV., p. 44, 1904 (N.Q.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 334, 1904 ; Hartert Nov. Zool. Vol. XII., p. 225, 1905 (N.W.A.) ; Lawson, Emu, Vol. IV., p. 134, 1905 (W.A.) ; Hill, *ib.*, Vol. VI., p. 179, 1907 (Vic.) ; Mathews, Handl. Birds Austral. p. 72, 1908 ; Whitlock, Emu, Vol. VIII., p. 181, 1908 (W.A.) ; Mathews, *ib.*, Vol. IX., p. 11, 1909 (N.W.A.) ; Whitlock, *ib.*, p. 197, 1910 (N.W.A.) ; Macgillivray, *ib.*, Vol. XIII., p. 171, 1914 (W.A.) ; S. A. White, *ib.*, Vol. XIV., p. 141, 1915 (Vic.) ; Cleland *ib.*, Vol. XVIII., p. 280, 1919 (N S W.).

Megalurus rufescens Gray, Genera Birds, Vol. I., p. 169, 1848.

Ptenædus rufescens Cabanis, Mus. Hein, Vol. I., p. 39, 1851 ; Gould, Handb. Birds Austr., Vol. I., p. 397, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878.

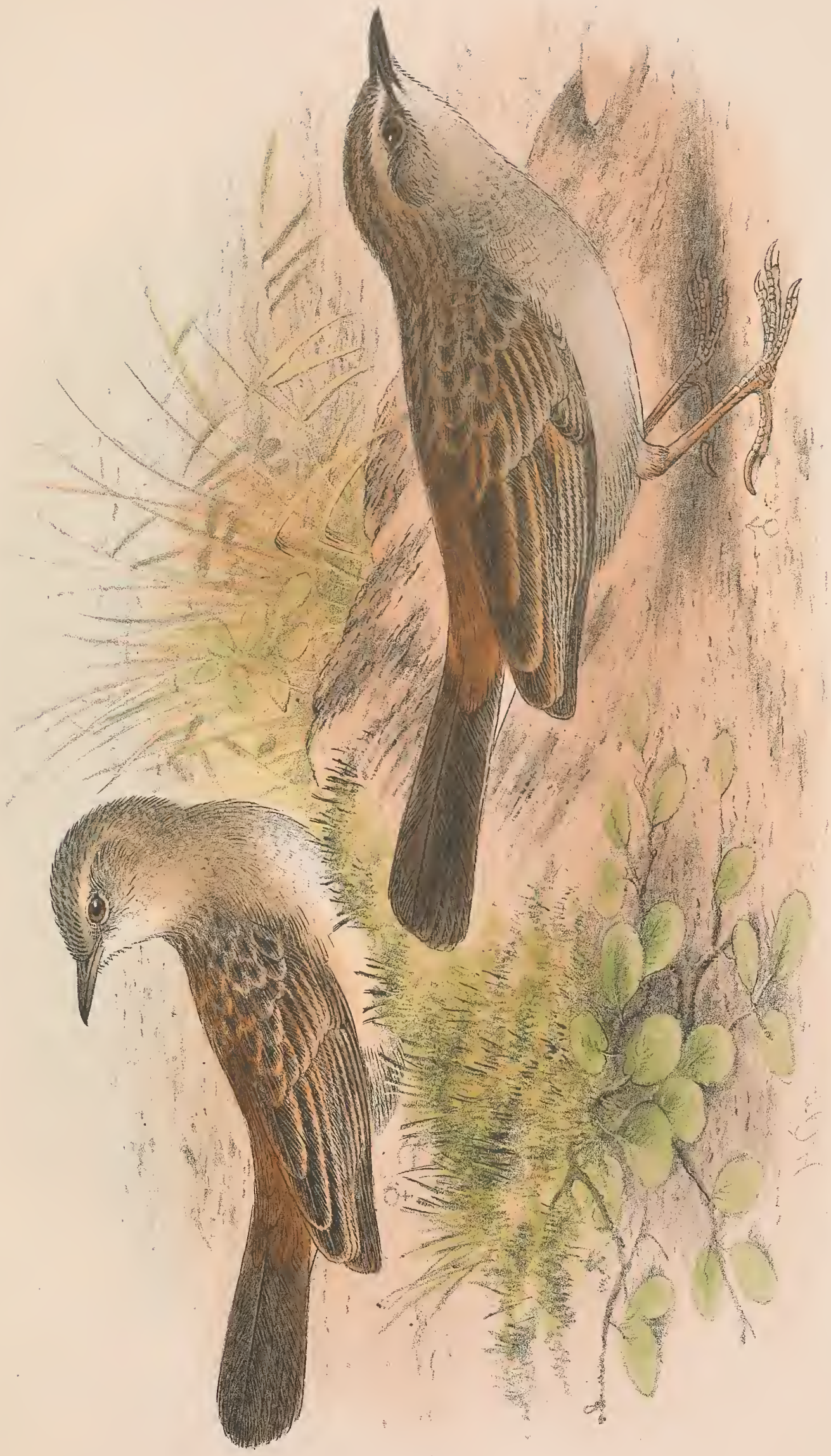
Cincloramphus rufescens mathewsi Iredale, Bull. Brit. Orn. Club, Vol. XXVII., p. 97, May 26, 1911 : Yalgoo, West Australia.

Cincloramphus mathewsi mathewsi Mathews, Nov. Zool., Vol. XVIII., p. 339, 1912.

Cincloramphus mathewsi alisteri Mathews, *ib.*, Jan. 31, 1912 : East Murchison, West Australia.

Cincloramphus mathewsi subalisteri Mathews, *ib.*, Parry's Creek, North-west Australia.

Cincloramphus mathewsi horsfieldi Mathews, *ib.*, Alexandra, Northern Territory, *id.*, Austr. Av. Rec., Vol. I., p. 58, 1912.



H. Grönvold, del.

Witherby & Co.

MACLENNANIA MATHEWSI.
(*SONG - LARK.*)

RUFOUS SONG-LARK.

Cincloramphus mathewsi vigorsi Mathews, *ib.*, new name for *Anthus rufescens* Vigors and Horsfield; Ashby, Emu, Vol. XVI., p. 231, 1917 (S.A.).

Ptenædus mathewsi mathewsi Mathews, List Birds Austr., p. 205, 1913.

Ptenædus mathewsi subalisteri Mathews, *ib.*; *id.*, South Austr. Ornith., Vol. 3, p. 140, 1918.

Ptenædus mathewsi horsfieldi Mathews, List Birds Austr., p. 205, 1913.

Ptenædus mathewsi vigorsi Mathews, *ib.*; Belcher, Birds Geelong, p. 258, 1914; S. A. White, Emu, Vol. XVIII., p. 21, 1918.

Poodytes gramineus normani (errore) Mathews, Austral. Av. Rec., Vol. II., pt. 5, p. 97, Sept. 24, 1914: Normanton, North Queensland.

Ptenædus mathewsi normani Mathews, Austral. Av. Rec., Vol. II., pt. 7, p. 133, Jan. 28, 1915: correction of preceding: Normanton, North Queensland.

Macleennania mathewsi Mathews, Austral. Av. Rec., Vol. III., p. 127, 1917.

Macleennania mathewsi mathewsi Mathews, *ib.*

Macleennania mathewsi subalisteri Mathews, *ib.*

Macleennania mathewsi horsfieldi Mathews, *ib.*

Macleennania mathewsi vigorsi Mathews, *ib.*

Macleennania mathewsi normani Mathews, *ib.*

Cincloramphus mathewsi (*subalisteri*) Söderberg, Kungl. Svensk Vetensk., Handl. Bd., 52, p. 92, 1918: N.W.A.

DISTRIBUTION. Australia; not Tasmania.

Adult male. General colour of the upper-surface dark hair-brown with buffy-white, or greyish-white margins to the feathers on the top of the head, back, scapulars and wings; inner margins of flight-quills whitish; upper tail-coverts rust-colour; tail-feathers only slightly paler on the edges of some of the feathers; a pale streak from the lores to above the eye milk-white like the throat; sides of face pale brown with more or less white intermixed; remainder of the under-surface greyish-white, somewhat darker on the breast where the feathers are spotted with brown, tinged with buff on the under tail-coverts, and more or less dark markings on the under wing-coverts; under-surface of quills and lower aspect of tail hair-brown with pale margins to the former. Bill black, feet pale brown, tarsus lighter, eyes dull brown. Total length 182 mm.; culmen 12, wing 96, tail 77, tarsus 28. Figured. Collected at Yalgoo Gold Fields Mid-west Australia, on the 19th of August, 1903, and is the type of *Cincloramphus mathewsi* Iredale.

Adult female. General colour of the upper-parts dark hair-brown including the head, back, wings and tail with buff margins to the feathers, which are paler and inclining to white on the wings; upper tail-coverts rust-colour; the margins of the tail-feathers are also paler than the back, there is an indication of obsolete crossbars on the tail-feathers; base of lores and a line over the eye and along the side of the crown buffy-white; a line behind the eye earth-brown; throat buffy-white; breast, abdomen, thighs and under tail-coverts pale buff somewhat darker on the sides of the body; axillaries and under wing-coverts buffy-white; under-surface of flight-quills pale brown with buff inner edges; lower aspect of tail also pale brown, with pale narrow margins to the feathers. Eyes brown, bill purplish-brown, feet and legs flesh. Total length 162 mm.; culmen 11, wing 77, tail 65, tarsus 23. Figured. Collected in East Murchison, West Australia, on the 20th of September, 1909.

Adult male similar to the adult female.

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Immature female. General colour of the upper-surface dark brown with greyish margins to the feathers on the crown of the head, hind-neck, sides of neck, and upper-back and rust-brown edges to the feathers of the wings, scapulars, and lower-back; inner webs of flight-quills hair-brown with buffy-white edges; upper tail-coverts chestnut; tail (imperfect) hair-brown with pale edges to the outer webs; lores and superciliary streak dull white; in front of the eye a few bristles with blackish tips; chin and throat cream-colour as are also the axillaries and under wing-coverts; breast and sides of breast smoke-brown with more or less greyish-white intermixed on the latter; abdomen pale isabelline; under tail-coverts pale fawn colour; thighs rust-colour; under-surface of flight-quills hair-brown margined with cinnamon; lower aspect of tail pale brown. Eyes black, feet pinkish, bill brown, lower mandible pink. Collected at Normanton, North Queensland, on the 1st of April, 1914.

Immature. General colour above hair-brown with pale fringes to the feathers on the top of the head, back, scapulars and wings; inner margins of flight-quills buffy-white; tail-feathers tipped and more or less margined along the edges with buffy-white; an indistinct whitish line from the lores to above the eye and along the sides of the crown; sides of face buffy-white; a dark mark in front of the eye; throat milk-white; remainder of the under-surface whitish-buff including the axillaries, under wing-coverts, and inner edges of the quills below; a dark patch on the margin of the under wing-coverts; remainder of the quill-lining and lower aspect of tail pale brown. Bill horn-colour; feet pale horn; eyes deep brown. Total length 161 mm.; culmen 12, wing 78, tail 68, tarsus 24. Collected at Marble Bar, Mid-west Australia, on the 18th of September, 1914.

Nest. Cup-shaped. Composed of grass and lined with the same material placed in a depression in the ground. Outside dimensions $4\frac{1}{2}$ inches by 3 inches deep; inside $2\frac{1}{2}$ by 2 deep.

Eggs. Clutch, three or four. Whitish, marked all over, but more at the larger end, with reddish spots. 22 mm. by 16.

Breeding-season. June to January or February, according to district.

VIGORS AND HORSFIELD described this species as *Anthus rufescens*, when they examined the Australian birds in the collection of the Linnean Society, but admitted: "we are not quite certain that it even belongs to this genus," as it was "in bad condition." No locality or name of collector or account of habits was given.

Gould referred it to his genus *Cincloramphus* and recorded: "If Australia be not celebrated for its singing birds, it has still some few whose voices serve to enliven the monotony of its scenery; and of these no one deserves greater attention than the bird here described, which is a very sweet songster, and whose note somewhat resembles but is much inferior to that of our own Skylark. With the exception of Tasmania, where I believe it is never seen, it appears to be distributed over all parts of Australia, specimens having been obtained in every locality yet visited by Europeans. In New South Wales and Western Australia it is strictly migratory, and only a summer visitor, arriving in August and departing in February; on the other hand, I met with it on the sandhills at Holdfast Bay, in South Australia, in the month of July, the period of winter;

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although not exclusively a terrestrial bird, it evinces a great partiality to open grassy plains here and there studded with trees, and spends much of its time on the ground, from which it makes perpendicular ascents to a great height in the air, and then descending to the tops of the highest trees, flies horizontally from one tree to another, singing all the time with the greatest volubility; the female, which is not more than half the size of the male, remaining all the while on the ground, from which she is not easily aroused, and consequently not so often seen. It breeds in October, November and December, and generally rears two broods during the season. The female is said to frequently utter a sharp shriek during the night."

Mr. Edwin Ashby has written me: "In this State (South Australia) this species is found in the more open timbered country but is never far away from the timber. Thirty years ago it was common in such situations in the suburbs of Adelaide, then for twenty years it nearly disappeared but now it is back in many of its old haunts, a few pairs now nesting each year at Blackwood. Its song is decidedly more pleasing than that of the Brown Songlark; it sings on the wing as it slowly flaps from tree to tree; in the month of September not only is its song one of the most attractive and constant sounds heard in its haunts, but the pauses are so brief that one wonders whether sufficient time is given to feeding."

Captain S. A. White's notes read: "This is one of the most beautiful songsters and puts in an appearance with us in the early spring and soon begins to sing, that is, the male bursts forth into a glorious melody as he flies from one tree to another; this is while the nesting time is on, but after this the male keeps with the female on the ground and only flies into a tree when flushed and ceases to sing. The nest is placed in a depression in the ground and is composed of dry grass and rootlets. They become very quiet and confiding if protected, and when the first tram line was laid through the reedbeds one of these birds made a nest, laid its eggs and reared its young, right alongside one of the sleepers upon which the line was fastened, and the cars were pulled past the nest by horses not less than once an hour. It has a wide range extending into the interior during good seasons."

Mr. Thos. P. Austin has sent me from Cobbora, New South Wales, this note: "This species is also strictly migratory, appearing in vast numbers during favourable springs, departing again after the breeding season is finished, while other years not a single bird is to be seen. Frequenting open forests and ringbarked country, where there is plenty of long grass, logs, and fallen branches. Generally met with feeding upon the ground, when flushed it usually settles in a dead tree, upon a stump, or on fallen dead timber. It is a beautiful songster, the notes being very clear, musical and rich, usually uttered

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during flight as the bird mounts into the air ; it also has another note, which is more often heard while the bird is perched. In my opinion this is the species in which the sitting female accepts a warning from the male, and sneaks off her nest at the approach of danger. The nest is cup-shaped, placed in a depression in the ground, in such situations as in long grass, herbage beneath logs or fallen dead branches, and in crops. The clutch is usually three or four in number, and they are rather late breeders. Their nests are most difficult to find, being mostly discovered just by chance."

Mr. F. E. Howe has also written : "This handsome bird was very plentiful around the homestead at Kow Plains, Victoria, and the rattle-like song was the first sound to be heard in the morning and the last in the evening. They were often noticed walking along the edges of the roof on the sheds and along the fences, and in this posture was like a small game fowl. The wings were drooped, the tail fanned and the crest, or feathers on the head, ruffled, the actions, too, being quite dignified. They appeared to be breeding, but we were unsuccessful in our search for their nests."

Mr. E. J. Christian notes : "I have generally found that this bird prefers to be near trees and can commonly be seen rising up and singing beautifully the whole time. It has a lively song, which is much shorter than that of the British Skylark, but longer than that of *C. cruralis*. The male only sings."

Mr. J. W. Mellor writes : "The Rufous Song-bird is also found at the reedbeds, but is now much more scarce than in the earlier days ; it also likes the open country where trees are only sparsely growing. Its song is a succession of sweet notes of a clear liquid tone, and uttered as the bird flies in the air, and drops down again into the grass. It loves to sing frequently this melodious carol, but it does not mount into the air to the same extent as the Brown Song-Lark, only taking short flights and alighting again on or near the ground. Its food is insects, found in the ground or in the grass."

Mr. J. P. Rogers' notes reads : "At Marngle Creek a few of these birds were seen but they were wild. I saw none at Mungi. On Jegurra Creek when returning to Derby I saw many of them and they were also numerous on the Fitzroy River."

A note from Mr. Tom Carter is interesting : "The Rufous Song-Lark is plentiful in the mid-west, but not in the south-west of West Australia. It is not a very conspicuous bird, mostly keeping to the ground in grassy plains, where it sits very closely at times. They were not often seen about the coast at Point Cloates, but were common on the open grass country thirty miles inland. The breeding-season is from June to September and October, and they probably also breed after any summer rains. The nest is usually placed

RUFOUS SONG-LARK.

on the ground in thick grass. In August and September 1911 these birds were quite numerous in the thick scrub about the banks and islands of the Gascoyne River near Carnarvon, which was unusual, but the reason was doubtless on account of the severe drought then prevailing. The clutch of eggs is four. Inland from Point Cloates nests were found on Aug. 2, 1899, and June 1, 1900, each containing four eggs; Sept. 8, 1911, fledged young seen on Minilya River; Sept. 30, 1913, several pairs noted, breeding near Carnarvon. On only one occasion I thought I saw and heard a pair at Broome Hill, South-west Australia."

Berney wrote: "A solitary male, obtained on 24th February, 1904, is my only experience of this species in North Queensland."

Cleland observed regarding the birds of the Pilliga Scrub, New South Wales: "This species was first met with just after leaving Top Well, on Coghill Creek. A bird was flushed in lightly timbered country and flew into a small bush. After hopping about in this it was secured. Another bird was met with near the edge of a field at Old Cubbo Station. It also was hopping about in bushes, and then flew on to a post. No note was uttered in either case. These habits were unlike those of *C. cruralis*, and the type of country frequented by the two birds was not the kind one would expect to find *Cinclorhamphus* in. At the time I did not recognise the species, and it was only on my return that I referred them to *C. rufescens*, and this identification was confirmed for me by Mr. Basset Hull. The two birds varied a good deal in size. Bird 1: Iris dark brown; bill light brown, paler below; pharynx greyish-black; legs flesh-brown. Bird 2: Iris light clay-brown; bill brown, paler below; pharynx smoky-brown; legs light brown. No entozoa in either."

Söderberg wrote: "This Lark was not uncommon round Mowla Downs. Its loud but not melodious singing was for the most part heard while the bird flew from one treetop to another, but it also sang when sitting."

Hall recorded J. P. Rogers' note from the Derby district: "*Cinclorhamphus rufescens* appeals to me as being a very rare bird. The only one seen rose from the ground and alighted a few yards away in some spinifex. Then, when I turned it out, it flew a few yards further into a small tree and hid among the leaves."

This species was commonly known as *Cinclorhamphus rufescens* until 1912 when I noted the specific name was preoccupied, and as Iredale had previously separated the West Australian form under the name *Cincloramphus rufescens mathewsi* as being darker, with a shorter bill and longer wing, that subspecific name became the species one. In my "Reference List" 1912 I made the necessary correction but retained the species in the genus *Cincloramphus*, a notably incorrect location. The forms I admitted were:

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Cincloramphus mathewsi mathewsi Iredale.

West Australia (Yalgoo).

Cincloramphus mathewsi alisteri Mathews.

"Differs from *C. m. mathewsi* in its much smaller size; wing 85 mm. East Murchison."

South-east Westralia.

Cincloramphus mathewsi subalisteri Mathews.

"Differs from *C. m. mathewsi* in having more rufous edgings to the feathers on the back. Parry's Creek, N.W.A."

North-west Australia.

Cincloramphus mathewsi horsfieldi Mathews.

"Differs from *C. m. vigorsi* in its paler coloration above, especially noticeable on the rump. Alexandra, N.T."

Northern Territory.

Cincloramphus mathewsi vigorsi Mathews.

New name for *Anthus rufescens* Vigors and Horsfield.

New South Wales, Victoria, South Australia.

In my 1913 "List" I accepted four subspecies only rearranging their ranges and using the genus name *Ptenædus*; these four may be here confirmed but the genus name must be *Macleannania*. Thus we have:

Macleannania mathewsi mathewsi (Iredale).

Mid-west Australia.

Macleannania mathewsi subalisteri (Mathews).

North-west Australia and Western Northern Territory.

Macleannania mathewsi horsfieldi (Mathews).

Eastern Northern Territory and Queensland (adjoining).

Macleannania mathewsi vigorsi (Mathews).

New South Wales, Victoria and South Australia.

GENUS—OREOCINCLA.

OREOCINCLA Gould, Synops Birds Austr., pt. IV.,
App. p. 3, April 1st, 1838. Type (by original
designation and monotypy) *Turdus varius* Horsfield

Also spelt—

Oreocichla Sharpe, Handl. Gen. Sp. Birds B.M., Vol. IV., p. 136, 1903.

LARGE Thrushes with long stout bills, long wings, long square tail and stout legs and feet.

The bill is about the length of the head, the sides compressed, a little expanded basally, the culmen arched, ridge-curved, tip decurved and definitely posteriorly notched; the nasal apertures are linear slits in a deep groove, the frontal feathers encroaching into the groove but not hiding the nostrils; the lower mandible stout, the interramal space feathered and less than half the length of the mandible, the gonys a little advancing upward; the nasal bristles many and noticeable, rictals few and obsolete.

The wing is long with the first primary small and narrow, about one-fourth the length of the third which, with the fourth and fifth, which are subequal, are longest, the second is a little shorter than these and equal to the sixth, the seventh, etc., regularly decreasing, and all exceeding the secondaries.

The tail is long and square composed of twelve broad feathers. //

The legs are short and stout, the tarsus booted in front and bilaminate behind, the toes slender, claws short and curved; the middle toe without claw is longer than the inner and outer with claw, which are subequal; the hind-toe stouter and as long as the inner toe, the hind-claw longer so that the hind-toe and claw is almost equal to the mid-toe and claw.

OREOCINCLA LUNULATA.

GROUND THRUSH.

(PLATE 438.)

TURDUS LUNULATUS Latham, Index Ornith. Suppl., p. XLII. (after May 30), 1801 : New South Wales.

Turdus lunulatus Latham, Index Ornith. Suppl., p. XLII., 1801.

Lunated Thrush Latham, Gen. Synops. Birds Suppl. II., p. 184, 1801.

Turdus varius Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 218, 1827.

Not of Horsfield, Zool. Res. Java. 1821.

Oreocincla novæhollandiæ Gould, Synops. Birds Austr., pt. iv., App., p. 3, April 1838 : *Nom. nud.* ; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 145, Dec. 1838, N.N. ; Gray, Ann. Mag. Nat. Hist., Vol. XI., p. 192, 1843, as synonym of *T. lunulatus* Latham.

Oreocincla macrorhyncha Gould, Synops. Birds Austr., pt. iv., App., p. 3, April 1, 1838 : New Zealand or Van Diemen's Land=Tasmania ; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 145, Dec. 1838 ; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 162, 1913.

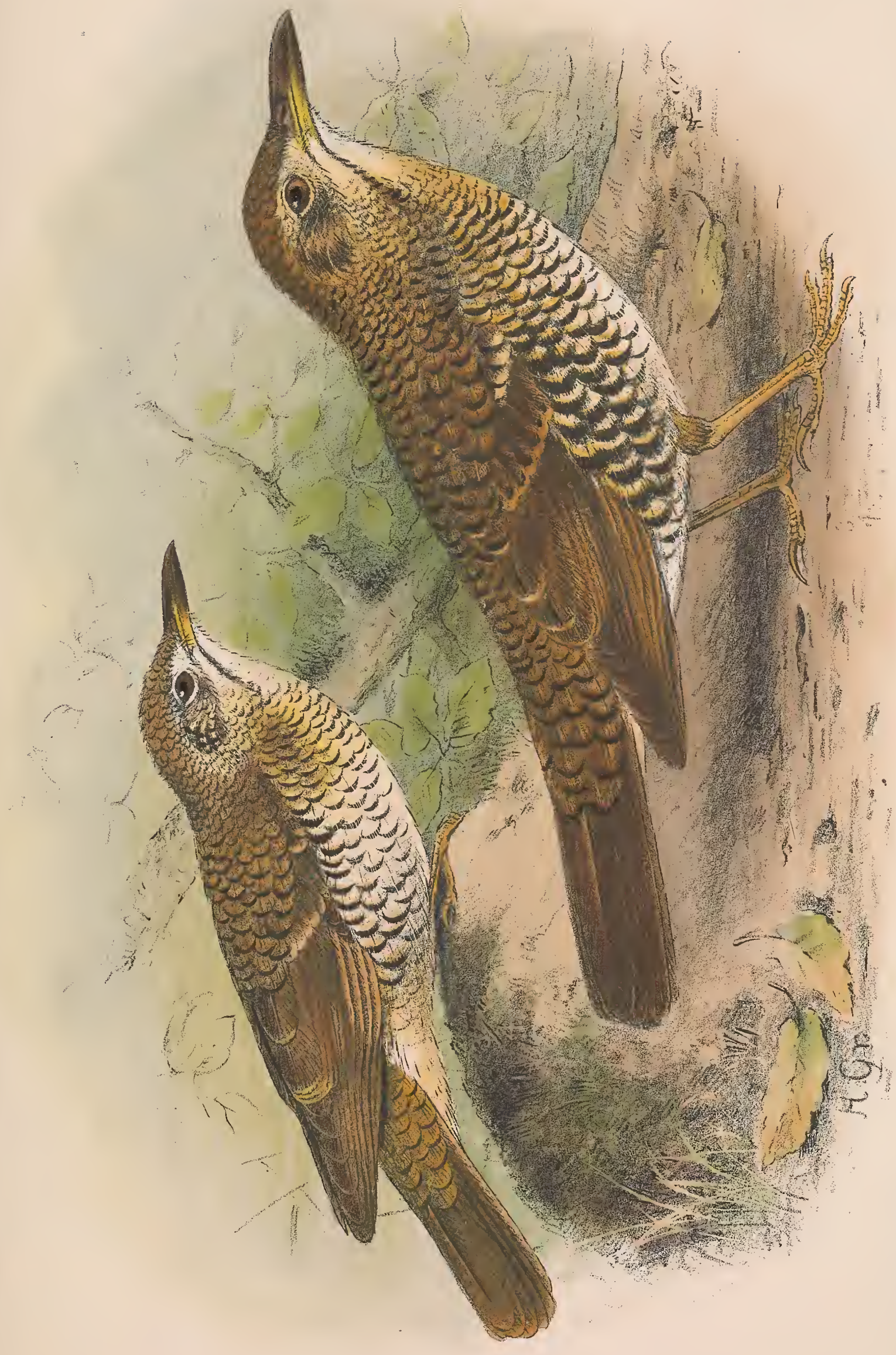
Oreocincla lunulata Gould, Birds Austr., pt. xxx. (Vol. IV., pl. 7), March 1st, 1848 ; *id.*, Handb. Birds Austr., Vol. I., p. 439, 1865 ; Diggles, Ornith. Austr., pt. xvii., 1868 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878 ; Barrett, Emu, Vol. XV., p. 145, pl. XXI., 1915 (Vic.) ; Lawrence and Littlejohns, *id.*, Vol. XVII., p. 108, pl. xvi., 1917 (Vic.) ; Barrett, *id.*, Vol. XIX., p. 238, pl. XLVI., 1920.

Oreocincla heinei Cabanis, Mus. Heine, Vol. I., p. 6 (after Oct. 23), 1851 : "Japan" errore =Queensland ; S. A. White, Emu, Vol. XIX., p. 219, 1920 (Q.).

Oreocincla iodura Gould, Ann. Mag. Nat. Hist., Ser. IV., Vol. IX., p. 401, May 1872 : Queensland. Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 162, 1913.

Geocichla lunulata Seebohm, Cat. Birds Brit. Mus., Vol. V., p. 155, 1881 ; Ramsay, Tab. List Austr. Birds, p. 11, 1888 ; Seebohm, Mon. Turd., pt. i., (pl. 8), 1898 ; Hall, Key Birds Austr., p. 21, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 184, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 234, 1904 ; A. G. Campbell, Emu, Vol. V., p. 141, 1906 : Kangaroo Island ; Batey, *ib.*, Vol. VII., p. 6, 1907 (Vic.) ; Mathews, Handl. Birds Austral., p. 72, 1908.

Geocichla macrorhyncha Seebohm, Cat. Birds Brit. Mus., Vol. V., p. 156, 1881 ; Ramsay, Tab. List Austr. Birds, p. 11, 1888 ; Seebohm, Mon. Turd., pt. i., p. 27, 1898 ; Hall, Key Birds Austr., p. 21, 1899 ; Campbell, Nests and Eggs Austr. Birds,



H. Grönvold, del.

Witherby & Co

OREOCINCLA LUNULATA.
(AUSTRALIAN GROUND-THRUSH).

GROUND THRUSH.

Vol. I., p. 188, 1901; A. G. Campbell, Emu, Vol. II., p. 206, 1903: King Island;
id., *ib.*, Vol. IV., p. 119, 1905; Mathews, Handl. Birds Austral., p. 72, 1908;
 Lettler, Handb. Birds Tasm., p. 30, 1910.

Geocichla heinii Seebohm, Cat. Birds Brit. Mus., Vol. V., p. 157, 1881; Ramsay, Tab.
 List Austr. Birds, p. 11, 1888; Seebohm, Mon. Turd., pt. I., pl. 6, 1898; Hall,
 Key Birds Austr., p. 21, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I,
 p. 190, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 237, 1904; Mathews,
 Handl. Birds Austral., p. 72, 1908.

Geocichla cuneata De Vis, Proc. Roy. Soc. Queensl., Vol. VI., p. 242, 1890: Herberton,
 North Queensland; Seebohm, Mon. Turd., pt. I., pl. 7, 1898; Hall, Key Birds
 Austr., p. 21, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 191, 1901;
 Mathews, Handl. Birds Austral., p. 72, 1908.

Oreocichla cuneata Jackson, Emu, Vol. VIII., p. 283, 1909 (N.Q.).

Geocichla lunulata subsp. *halmaturina* A. G. Campbell, Emu, Vol. V., p. 140, Jan. 1, 1906:
 Kangaroo Island.

Turdus lunulatus lunulatus Mathews, Nov. Zool., Vol. XVIII., p. 339, 1912.

Turdus lunulatus cuneatus Mathews, *ib.*, p. 340.

Turdus lunulatus heinei Mathews, *ib.*

Turdus lunulatus dendyi Mathews, *ib.*, Jan. 31, 1912: (Sassafras) Victoria, *id.*, Austr. Av.
 Rec., Vol. 1, p. 58, 1912.

Turdus lunulatus macrorhynchus Mathews, *ib.*

Oreocincla lunulata lunulata Mathews, List Birds Austr., p. 206, 1913.

Oreocincla lunulata heinei Mathews, *ib.*

Oreocincla lunulata cuneata Mathews, *ib.*

Oreocincla lunulata dendyi Mathews, *ib.*, Belcher, Birds Geelong, p. 259, 1914.

Oreocincla lunulata halmaturina Mathews, *ib.*

Oreocincla lunulata macrorhyncha Mathews, *ib.*

DISTRIBUTION. Eastern Australia from North Queensland to Tasmania; South Australia
 and Kangaroo Island.

Adult male. General colour of the upper-surface ochreous-bronze-brown with black
 margins to the feathers, including the hind-neck, back, upper tail-coverts and
 scapulars; crown of the head darker than the back and inclining to dark chestnut-
 brown with scarcely any black margins to the feathers; lesser upper wing-coverts
 bronze-brown with small ferruginous tips, which are increased in size on the median
 and greater series; primary-coverts blackish-bronze-brown on the outer-webs;
 flight-quills dark brown margined with bronze-brown on the outer-webs and more
 broadly with buffy-white on the basal portion of the inner ones, which is replaced
 by white on the secondaries; tail uniform dark bronze-brown except on the outer
 feathers on each side, which are paler and marked with buffy-white at the tips;
 lores and eyelids buffy-white; ear-coverts intermixed with black, bronze, and
 white; cheeks buff with black tips to some of the feathers; sides of neck similar;
 a dark moustachial streak; chin and upper throat white; lower throat and fore-neck
 fawn colour with black edges to the feathers; sides of the breast similar to the
 back; breast and upper abdomen white with blackish fringes to the feathers;
 sides of the body similar but the fringes much wider; thighs pale grey; lower

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abdomen and under tail-coverts buffy-white; axillaries white at the base and black on the apical half; marginal under wing-coverts white, the remainder dark brown; under-surface of flight-quills dark brown, white at the base of the inner ones and fading to buffy-white on the middle of the wing; lower aspect of tail similar to that of its upper-surface. Bill dark brown; eyes dusky; feet and legs light yellow. Total length 270 mm.; culmen 29, wing 143, tail 109, tarsus 34. Figured. Collected at Malanda, North Queensland, in September 1911.

Adult female. Similar to the adult male.

Adult male. General colour of the upper-surface golden bronze-brown with dark margins to the feathers including the top of the head, nape, hind-neck, sides of the lower-neck, back, scapulars, and upper tail-coverts, the last inclining to old-gold-yellow; lesser upper wing-coverts uniform bronze-brown, the median and greater series blackish-brown with buffy-white tips; bastard-wing uniform golden-bronze; primary-coverts blackish on the inner webs and golden-bronze on the outer ones like the flight-quills which have a patch of white on the inner webs; middle tail-feathers uniform golden-bronze, the outer feathers darker with buffy-white tips, the outermost feather on each side is much paler and has the apical portion of the inner web white; lores cream-white; sides of the face and sides of the neck cream-white with dark edges to the feathers; a dark moustachial streak on each side of the throat; throat buffy-white, becoming pale buff on the breast where the feathers have blackish margins; lower-breast and sides of the body cream-white with blackish margins to the feathers, which are broader on the latter; abdomen and under tail-coverts cream-white; axillaries white with black tips, the long ones white on the apical portion like the inner margins of the quills below; under wing-coverts, and the marginal under wing-coverts white, the, inner ones like the under-surface of the flight-quills; lower aspect of tail similar but paler on the tip and on the outer-feather on each side. Total length 250 mm.; culmen 23, wing 125, tail 92, tarsus 27. Figured. Collected near Brisbane, Queensland.

Nest. Cup-shaped. Composed outwardly of a coating of green moss, then strips of bark, etc., and lined with grass. Outside measurement 10 inches by 6 deep. Inside 3 by 2 inches deep.

Eggs. Clutch, two or three. Ground-colour buff, marked all over with reddish-brown markings. 34 mm. by 23.

Breeding-season. July to October.

THIS species was described by Latham from one of the Watling drawings, but no note of its habits was there given. In the collection of the Linnean Society was a specimen "the only specimen Mr. Caley ever met with; it was much shattered by the contents of his gun," and this was referred to *Turdus varius*, a species just previously described by Horsfield from Java.

Gould named it *Oreocincla novæhollandiæ* and described another species as *O. macrorhyncha* but soon recognised that Latham's name was available and therefore used it, writing of its habits as: "In all localities suitable to its habits and mode of life this species is tolerably abundant, both in Tasmania and in New South Wales; it has also been observed in South Australia, where, however, it is rare. From what I saw of it personally, I am led to infer that it gives a decided preference to thick mountain forests, where large boulder

GROUND THRUSH.

stones occur covered with green moss and lichens, particularly if there be much humidity ; rocky gulleys and the sides of water-courses are also among its favourite places of resort. In Tasmania, the slopes of Mount Wellington and other similar bold elevations are situations in which it may always be seen if closely looked for. During the summer it ascends high up the mountain sides, but in winter it descends to the lower districts, the outskirts of the forests, and occasionally visits the gardens of the settlers. In New South Wales, the Cedar Brushes of the Liverpool Range and all similar situations are frequented by it ; I also observed it on the islands at the mouth of the Hunter ; and I possess specimens from the north shore near Sydney and the banks of the Clarence. Its chief food is helices and other mollusks, to which insects of many kinds are added ; and it is most likely that fruits and berries occasionally form a part of its diet. It is a solitary species, more than two being rarely observed together, and frequently a single individual only is to be seen noiselessly hopping over the rugged ground in search of food. Its powers of flight are seldom exercised, and so far as I am aware it has no song."

Captain S. A. White's notes read : " These birds are sparingly distributed through the Mount Lofty Ranges and confined to the deep timbered and damp gullies ; they are timid and retiring, very suspicious, and should you only look at their nest containing young or eggs they will pull the nest to pieces and destroy the contents. It is a rare bird on Kangaroo Island and I have not been able to secure specimens ; the immature specimen from which Mr. A. G. Campbell suggested a new species is not sufficient material to work upon."

Mr. Edwin Ashby has written me : " I only find this Thrush in the quiet of deep damp gullies in the Adelaide hills ; it is not a shy bird and does not resent intrusion in its secluded haunts, but will go on feeding or searching for food on some moss-covered log while one watches provided one keeps quiet and still. I have found it in similar situations on Mt. Dandenong in Victoria and on Mt. Wellington in Tasmania. I shot a specimen in the semi-tropical brush of the upper waters of the Richmond River, New South Wales, and was surprised to find it belonged to the northern russet form ; its short tail and russet colour easily distinguished it from South Australian birds."

Mr. J. W. Mellor wrote me : " This Thrush is seen along the Mount Lofty Ranges but never in numbers ; it goes either singly or in pairs and is a cautious and somewhat shy bird, loving to keep near to the ground and where the bushes afford good shelter from observation. It is not seen usually on the Adelaide Plains, but this morning, Feb. 11th, 1912, I saw one at the reedbeds, scratching amongst the dry leaves, etc. ; this is the first bird that I have seen in this district and was quite tame and allowed me to approach to within a few yards of it. Insects are its chief food."

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Mr. F. E. Howe has sent me : " We have observed the nest of this terrestrial bird both at Ringwood and Ferntree Gully, Victoria. Young nearly fledged were photographed at Ringwood as early as September 1st, 1907, and eggs were noticed as late as November 17th the same year. They repair to the same spot to nest year after year, adding to the old nest until it assumes a fair size."

Mr. L. G. Chandler notes : " The Thrush is plentiful in the Dandenong Ranges and in the Frankston district. It is rarely seen on mountain tops ; in gullies or other sheltered nooks you are sure to find it. The birds, when feeding, move over the ground by short runs and hops. The large bright eye quickly detects a worm or insect moving beneath the debris, and a quick pick and side movement of the bill to toss some leaves aside and seize its prey, but it often happens that their efforts have been in vain. They always keep their back turned towards the observer, and in the dusk of the evening so perfectly does the colour harmonise with their environment that it is difficult to see the bird when still. With the exception of a note of fear I have never heard them give other than the one squeaky call."

Mr. E. J. Christian's observations read : " This species is an early nester, as I have found three young in nest, Aug. 26th, 1905, at Black Rock, 13 miles south of Melbourne. I have found it plentiful in the ' Ohiays ' (a range running from N.N.E. to S.S.W. parallel to the coast), and it is also widely distributed amongst the tea-tree clad shores of Port Phillip, which are by no means mountains. I have found this bird extremely shy and have never been able to approach very near to it. It does good work in the thick scrub by eating grubs and insects which it finds on the ground. Its scratchings may often be seen in the decaying layer of leaves. The nest is an extremely pretty one, being built of dried grass and leaves, the outside being covered with green moss. Generally found built close to the ground in thick places, the highest one noted being seven feet."

Broadbent wrote : " Hein's Thrush (*G. heinii*) is rare in the district, occurring at Herbert Gorge. Broadbent's Thrush (*G. cuneata* De Vis), occurring at Herberton, constitutes one of my new discoveries. This is a larger bird than either of the other species of the genus, even including the southern species (*G. lunulata*), and is distinguished among them by this circumstance and the rufous colour of its under tail-coverts. It is a true mountain-loving bird, though not to be met with on the mountains at the back of Cardwell. At Herberton even it was rather scarce ; there it is especially active in wet weather towards sunset, when its mournful note is very noticeable."

Mr. Frank Littler has written me : " This Thrush is fairly well distributed throughout Tasmania, but nowhere common. The situations most favoured

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by it are shady creeks and gullies and the thick scrub on mountain sides; moist places are most in favour. It feeds on seeds and insects, the latter almost entirely procured from out of the ground or from among the fallen leaves and twigs. It will dart along the rows of vegetables, stop suddenly and, with swift movement, snatch up some succulent grub, then more briskly hurry on. It seldom employs its wings, which are not strong, but trusts rather to its feet. The rapidity with which it can get from place to place is astonishing. The note is a very pretty, low whistle, to be heard early in the morning and at dusk."

When Gould proposed the genus *Oreocincla* he named as types the *Oreocincla novæhollandiæ* and *Turdus varius* Horsfield; at the same time he proposed as a new species *Oreocincla macrorhyncha* from New Zealand or Van Diemen's Land. The former name was never afterwards made use of. When Gray examined the Lambert drawings he identified with it Latham's *Turdus lunulatus*, and Gould immediately accepted the identity. It may be of interest to note that Bonaparte recorded it incorrectly as follows: "*Oreocincla novæhollandiæ* du continent australasien et *Or. lunulata* de la terre de Van-Diemen, que son gros bec a fait nommer *macrorhyncha* par Gould, sur des exemplaires crus a tort de la Nouvelle Zélande."

In this case Gould almost immediately recognised that the variation was comparatively inconstant and synonymised *macrorhyncha* with *lunulata*. Some years afterward Cabanis named a species of this group supposed to have come from Japan, and twenty years later still Gould described a new species from Queensland. It was almost immediately discovered that Gould's new species was the same as that of Cabanis, and consequently the locality given by Cabanis was wrong. A new species was later still proposed by De Vis from the Herberton district, North Queensland.

Dealing with the birds of Kangaroo Island, A. G. Campbell wrote: "*Geocichla lunulata* (? variety). A single specimen procured was youthful, and has a short bill. Two other birds were noticed that had just left the nest, were being fed by their parents, and had a curious circlet of down still about the head. This, however, approximates to the Tasmanian species, *G. macrorhyncha*, on account of its darker plumage. Both insular forms have the black crescent edging to the feathers of the upper surface broadest on the crown, while in *G. lunulata* the markings are narrowest in that part. About the breast, also, the crescent marks of the under-parts become broader and form a thick dark patch. For this I would suggest that the name *halmaturina* be subspecifically applied to *Geocichla lunulata*."

Reviewing the species for the purpose of my "Reference List" 1912, I concluded that all the variations were of subspecific value only, and further-

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more that the Victorian bird was more easily distinguishable than some of the earlier separated forms. I therefore diagnosed this as :

Turdus lunulatus dendyi Mathews.

"Differs from *T. l. lunulatus* in its darker coloration, noticeably on the head and breast. Victoria."

South Australia and Victoria,
and admitted five subspecies, omitting the tentatively named Kangaroo Island as given above. This I recognised in my 1913 "List," arranging the six subspecies under the name *Oreocincla lunulata*, thus :

Oreocincla lunulata lunulata (Latham).

New South Wales and Northern Victoria.

Oreocincla lunulata heinei Cabanis.

Southern Queensland.

Oreocincla lunulata cuneata (De Vis).

North Queensland (Herberton district).

Oreocincla lunulata dendyi (Mathews).

Southern Victoria and South Australia.

Oreocincla lunulata halmaturina (A. G. Campbell).

Kangaroo Island, South Australia.

Oreocincla lunulata macrorhyncha Gould.

Tasmania.

GENUS—EPHIANURA.

EPHIANURA Gould, Synops. Birds Austr.,

pt. IV., App. p. 3, April 1st, 1838.

Type (by original designation) ... *Acanthiza albifrons* Jardine and Selby.

Also spelt—

Ephthianura Gould, Proc. Zool. Soc. (Lond.), 1837, p. 148, Dec. 1838.

Hephthænura Reichenbach, Vogel Neuhollands, p. 294, 1850.

Cinura Brehm, Isis, 1845, heft. 5,

col. 358, May. Type (by monotypy) *Cinura torquata* Brehm=

Acanthiza albifrons Jardine and Selby.

Also spelt—

Cynura Bonaparte, Consp. Gen. Av., Vol. I., p. 298, 1850.

SMALL Chat-like birds with short thin bills, long pointed wings, medium square tail and long slender legs and small feet.

The bill is shorter than the head, compressed laterally, anteriorly a little expanded at the base, tip slightly decurved, lateral edges of mandible straight; the nasal apertures linear, strongly operculate; no nasal or rictal bristles; the interramal space about half the length of the lower mandible and feathered.

The wing is pointed, the first primary very small and thin, less than one-third the length of the longest primaries; these are the third, fourth and fifth which are subequal, while the second, which is equalled by the sixth, is only a very little shorter, the secondaries are long, equalling the ninth primary, which is noticeably shorter than the longest.

The tail is of medium length, a little more than half the length of the wing and regularly square in shape; the tail-coverts are long, more than half the length of the tail.

The legs are long and slender, the tarsus being nearly twice as long as the bill; the front is plainly scuted but the back is bilaminate; the feet are small and delicate, claws long and little curved; the mid-toe equal to the inner toe with claw which equals the outer; hind-toe stronger and with longer claw only a little shorter than mid-toe and claw.

In the Emu, Vol. XII., p. 204, et seq. 1913, in connection with the species *Ephthianura lovensis* Ashby, I gave some notes with regard to the coloration and structure of the species previously associated under the genus name

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Epthianura, separating them into different genera as hereafter used, observing :
“The type of *Epthianura* (Gould) is the *Acanthiza albifrons* of Jardine and Selby. Though the males of *E. albifrons* (Jardine and Selby) and *E. tricolor* (Gould) are quite unlike in coloration, they have dull-coloured females which somewhat resemble each other, the red rump of the latter being the most noticeable feature. From both of these species the male of *E. aurifrons* (Gould) absolutely differs in its coloration ; but here again the dull female is not so very dissimilar, the red rump being replaced by a yellow one, while a yellowish-green wash pervades the lower surface. *E. crocea* (Castelnau and Ramsay) recalls the preceding species in the style of coloration of the male, while the female is not so markedly different, the yellow rump being present, while on the under-surface the yellow is mainly restricted to the flanks, lower abdomen, and under tail-coverts, where, however, it is not so noticeable as in the preceding species. . . . *E. tricolor* (Gould) has its bill longer and more slender than in *E. albifrons* while it has shorter claws, and, though the wing is as long, the first primary is appreciably shorter. . . . The entirely different coloration of the males has more significance than the apparent similarity of the so-called structural characters.”

At present we have no exact data to determine the position of these “Chats,” and their location as such is questionable ; a comparison of their osteological structure might assist in determining the relationships of the group.



H. Gronvold del.

Witherby & Co.

PAREPTHIANURA TRICOLOR

(TRICOLOURED CHAT).

EPHIANURA ALBIFRONS

(WHITE-FRONTED CHAT).

Order PASSERIFORMES.

Family TURDIDÆ.

No. 520.

EPHIANURA ALBIFRONS.

WHITE-FRONTED CHAT.

(PLATE 439 (right hand figs.).)

ACANTHIZA ALBIFRONS Jardine and Selby, Illus. Ornith., Vol. II., pl. 56, Nov. 1828 : New South Wales.

Acanthiza albifrons Jardine and Selby, Illus. Ornith., Vol. II., p. 56, 1828.

Ephianura albifrons* Gould, Synops. Birds Austr., pt. iv., App., p. 3, April 1838 ; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 148, Dec. 1838 ; *id.*, Birds Austr., pt. vi. (Vol. III., pl. 64), March 1st, 1842 ; Ewing, Pap. Proc. Roy. Soc. Van Diemens Land, Vol. III., pt. i., p. 145, 1855 ; Gould, Handb. Birds Austr., Vol. I., p. 377, 1863 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 666, 1883 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 30, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 282, 1901 ; Legge, Emu, Vol. I., p. 83, 1902 (Tas.) ; Milligan, *ib.*, Vol. II., p. 73, 1902 (S.W.A.) ; Hill, *ib.*, p. 163, 1903 (Vic.) ; Littler, *ib.*, p. 171 (Tas.) ; A. G. Campbell, *ib.*, p. 207 (King Island) ; Milligan, *ib.*, Vol. III., p. 17, 1903 (S.W.A.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 343, 1904 ; A. G. Campbell, Emu, Vol. V., p. 142, 1906 (Kangaroo Island) ; McClymont, *ib.*, p. 161 (Tas.) ; Hill, *ib.*, Vol. VI., p. 179, 1907 (Vic.) ; Mathews, Handl. Birds Austral., p. 73, 1908 ; Ogilvie Grant, Ibis, 1909, p. 680 (W.A.) ; Crossman, Emu, Vol. IX., p. 88, 1909 (W.A.) ; Hall, *id.*, p. 128, 1910 (Eyre's Peninsula) ; Littler, Handb. Birds Tasm., p. 44, 1910 ; Wilson, Emu, Vol. XII., p. 35, 1912 (Vic.) ; Mellor and White, *id.*, Vol. XII., p. 162, 1913 (Flinders Island) ; S. A. White, *ib.*, Vol. XIII., p. 26, 1913 (S.A.) ; Chandler, *ib.*, p. 40 (Vic.) ; S. A. White, *ib.*, Vol. XIV., p. 141, 1915 (Vic.) ; Purnell, *ib.*, Vol. XV., p. 42 (Vic.) ; Ashby, *ib.*, Vol. XVI., p. 233, 1917 (S.A.) ; S. A. White, *ib.*, Vol. XVIII., p. 21, 1918 (S.A.) ; Campbell, *ib.*, p. 258, 1919 (W.A.) ; Littlejohns and Lawrence, *ib.*, Vol. XIX., p. 312, pl. LX., 1920 (Vic.) ; Thomson, *ib.* Vol. XX., p. 94, pl. VIII., 1920 (Vic.) ; Whitlock, *ib.*, p. 179, 1921 (W.A.) ; Russell, *ib.*, Vol. XXI., p. 141, 1921.

Fluvicola leucocephala Lesson, Echo du Monde Savant, 11th year, No. 12, col. 275, Aug. 1844 : New South Wales. Cf. Menegaux Art. d'Ornith. (Lesson), p. 207, 1913.

* Also spelt *Ephthianura*.

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Cinura torquata Brehm, Isis, 1845, heft 5, col. 358, May : New South Wales.

Acanthylis albifrons "Boie" Gray, Gen. Birds., App., p. 9, 1849.

Epthianura albifrons albifrons Mathews, Nov. Zool., Vol. XVIII., p. 340, 1912; *id.*, List Birds Austr., p. 207, 1913.

Epthianura albifrons tasmanica Mathews, Nov. Zool., Vol. XVIII., p. 340, Jan. 31, 1912 : Tasmania; *id.*, List Birds Austr., p. 207, 1913.

Epthianura albifrons westralensis Mathews, Nov. Zool., Vol. XVIII., p. 341, Jan. 31, 1912 : Wilson's Inlet South-west Australia; *id.*, Austral Av. Rec., Vol. I., p. 59, 1912; *id.*, List Birds Aust., p. 207, 1913; Carter, Ibis, 1917, p. 588; *id.*, *ib.*, 1921, p. 56.

DISTRIBUTION. Southern Australia from New South Wales to South-west Australia and Tasmania.

Adult male. Fore-part of head, sides of face, throat, abdomen, and under tail-coverts white; back, upper wing-coverts, sides of body and under wing-coverts slate-grey; back of head, sides of neck, and a band across the breast black; bastard-wing, median and greater upper wing-coverts, primary-coverts, and flight-quills, above and below, dark smoke-brown like the under wing-coverts; thighs rust-brown; upper tail-coverts black; tail black, the apical portion of the inner webs white. Bill and feet black, eyes white. Total length 116 mm.; culmen 10, wing 71, tail 42, tarsus 19. Figured. Collected on Flinders Island, Bass Straits, on the 24th of November, 1912.

Adult female. General colour of the upper-surface slate-grey including the top of the head, sides of face, sides of neck, hind-neck, back, scapulars, and lesser upper wing-coverts; bastard-wing, median and greater upper wing-coverts, primary-coverts and flight-quills dark brown; upper tail-coverts and tail-feathers blackish-brown with an oval spot of white on the inner webs at the tips of the latter; throat, abdomen, and under tail-coverts white; a band of black across the breast; sides of body inclining to grey; under wing-coverts dark smoke-brown; under-surface of flight-quills dark brown; lower aspect of tail blackish-brown with white at the tips of the feathers. Bill and feet black, eyes pale red. Total length 120 mm.; culmen 10, wing 70, tail 40, tarsus 18. Figured. Collected at Broome Hill, South-east Australia, on the 6th of May, 1906.

Immature female. General colour of the upper-surface earth-brown including the crown of the head, entire back, and outer aspect of the wings; bastard-wing, primary-coverts and inner webs of the flight-quills blackish-brown; tail also blackish-brown with a large patch of white on the inner webs at the tip of some of the feathers; lores and a line above the eye white; sides of the face similar to the crown of the head; chin and throat white; a band across the chest and the sides of the body earth-brown like the thighs; abdomen and under tail-coverts white; axillaries, under wing-coverts and under-surface of flight-quills smoke-brown; lower aspect of tail blackish-brown with more or less white at the tip. Eyes dark, feet black, upper mandible black, lower with brown base and tip black. Collected North-west of Port Augusta, South Australia, on the 6th of October, 1911.

Male fledgling. Crown of head, hind-neck, sides of neck, and a narrow band across the breast mouse-brown; back, outer margins of greater upper wing-coverts and secondary-quills rust-brown; bastard-wing, primary-coverts, inner webs of greater coverts and flight-quills dark brown; tail blackish-brown, the lateral feathers white on the inner webs; sides of face grey; chin and throat greyish-white;

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breast, abdomen, thighs, and under tail-coverts white. Eyes brown, bill and feet grey. Collected at Glenferrie, Victoria, on the 14th of September, 1910.

Nest. Cup-shaped. Placed in a low bush or long grass. Composed of twigs and fine rootlets and lined with horse hair. Outside measurements $2\frac{1}{2}$ inches deep by 4 wide. Inside $1\frac{1}{2}$ inches deep by 2 wide.

Eggs. Clutch, three to four. White with reddish-brown spots on the larger end. 18-19 mm. by 14-15.

Breeding-season. July to December, but eggs have been taken in other months.

ALTHOUGH not the describer, Gould gave the first notes concerning this species, writing: "This species appears to range over the whole of the southern portion of the Australian continent, for I have specimens in my collection which were killed at Swan River, in South Australia, and in New South Wales. It does not inhabit Tasmania, but is very common, and breeds on some of the islands in Bass's Straits. It is a most sprightly and active little bird, particularly the male, whose white throat and banded chest render him much more conspicuous than the sombre-coloured female. As the structure of its toes and lengthened tertiaries would lead us to expect, its natural province is the ground, to which it habitually resorts, and decidedly evinces a preference to spots of a sterile and barren character. The male frequently perches either on the summit of a stone, or on the extremity of a dead and leafless branch. It is rather shy in its disposition, and when disturbed flies off with considerable rapidity to the distance of two or three hundred yards before it alights again."

Ramsay later added: "These birds arrive in New South Wales about the beginning of September and October. In the latter month they commence building on open lands studded with low bushes. . . . These birds readily betray the position of their nests or young by their anxiety and attempts to draw one from the spot by feigning broken wings, and by lying struggling on the ground as if in a fit. They have two broods (and perhaps more) in the year, after which the young accompany the parent birds to feed generally on the salt marshy grounds near the water's edge. About Botany and the Parramatta River, upon the borders of the Hexham swamps, etc., they are plentiful. They evince a decided preference for open half-cleared patches of land. I never found more than four or six together, doubtless the offspring of one pair; still it is not unusual to find them in pairs only. As far as I am aware, they have but one very plaintive note, which is emitted chiefly while flying or when the nest is approached."

Mr. Thos. P. Austin has sent me the following note from Cobbora, New South Wales: "Not by any means common in this district, but just a few small flocks may turn up at any time, a few remaining to breed in the spring, but in 1914 I flushed a female from her nest and eggs in the middle of June."

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In the district of Geelong, Victoria, they used to be extremely numerous, and nested freely in the furze hedges and samphire bushes, both birds assisting in the task of incubation. The nests are beautifully constructed, formed of long dry grass stems, the rim at the top of the cup being spread out flat, some pieces of the grass projecting away from the nest several inches, giving it an irregular appearance on the outside, but the deep cup is very neatly finished, lined with roots and horsehair, if available, and they generally seem to manage to find a little somewhere. Three eggs usually form a clutch, but occasionally four or even five are found. This bird has the same peculiar habit as the Black-breasted Plover, some of the Ducks and other species, of fluttering off the nest and along the ground, to all appearance with a broken leg and wing. This has long been looked upon as a cunning practice to draw an intruder away from the nest, and there is no doubt this does certainly appear to be the case, but I cannot quite believe the birds adopt these habits with any artfulness of mind, but that it is simply an act of fear. However, giving the birds credit for this brain power or not, it sometimes works, as I have seen small boys and dogs drawn away from the nest thinking they could capture the bird."

Mr. F. E. Howe has written me: "Has been noted for Ringwood and Ferntree Gully and is partial to the open flat country. This little creature is very quick in its movements and is one of the few birds that walk. It is a very early breeder, and when the nest is discovered endeavours to entice one away by feigning a broken limb. The female alone undertakes the task of incubation, the male feeding her on the nest."

Mr. L. G. Chandler writes: "I noticed young flying at the You-Yangs on August 31st, 1908. Around Bayswater and Croydon (all in Victoria) they breed much later. They congregate into small flocks soon after the young have left the nest."

Mr. E. J. Christian has sent me the following note from Victoria: "This is a very common bird here now, but a few years ago they were to be found only in a large swampy part of the Station. Up till 1906 only odd pairs were seen; in 1907 I was surprised at their numbers everywhere I went, except perhaps thickly timbered country, I found them very plentiful. It is not migratory but nomadic, although south of the Divide it is not so common during the cold months. In March and April 1907 the dams were very low and the swamps empty. One day we pumped water into one of the tanks from the Creek, and as it was a still morning we could hear the water falling into the dam $2\frac{1}{2}$ miles away. Before we started to pump there were very few of these birds about, but almost at once the ground became covered with them and they waded about with evident pleasure. They are extremely graceful when walking, but they are not very graceful fliers. When they

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fly they issue a very weak note, one of the weakest amongst our birds I think, namely, a note sounding like 'Toney,' which is their popular name here. I have heard them called 'Bumps' and this very aptly describes their flight. Some call them 'Moon Birds' on account of the distinct crescent on their breasts. Their nests are often found at the base of a milk thistle or in a lignum bush; in these positions I have never found them higher than eight inches from the ground. As a rule, they are early breeders, but in 1908 they were late, the 17th August being the first find. I have often found their nests in July. On September 1st-6th, 1906, on the Little River I found a hedge containing nests every three or four yards, some of them three feet from the ground; some of them contained young ones and some eggs. About half a mile away I found a nest on the ground ready for eggs. The nest is very neat, cup-shaped, deep, and constructed of dried grass."

Mr. F. E. Howe has also added: "Have also noticed them at Parwon, Whittlesea and other places near Melbourne, at Tailem Bend in South Australia and in the Victorian Mallee both at Pine Plains and Kow Plains. At the last mentioned locality they were seen in hundreds in the Salt and Blue Bush country."

Captain S. A. White has written me: "*E. albifrons* has an extensive range but does not extend into the interior, the other two species, *P. tricolor* and *A. aurifrons*, taking its place there. They prefer open plains and swampy country to any other, although at times they are seen in timbered country and in the ranges. They seldom perch upon a tree, but are often seen on bushes, posts and wires of fences; they move over the ground rapidly in search of insects and resemble the Pipits much in their actions. They pair off in the breeding-season, but as soon as this is over they congregate in large flocks and shift according to food supply, but there are some always to be found throughout the year on the Adelaide Plains. They are purely insectivorous; the call is two notes mostly uttered upon the wing and resembling the word 'tin-tac,' and by this name the bird is often known. These birds breed early and late from June to January, and they often bring up three broods in the season; both sexes help to incubate, and when flushed from the nest act as if wounded to draw you away from the nest; the nest is nearly always built low down near the ground in some low bush or thistle and composed of grass, twigs, rootlets, etc., lined with horsehair; the eggs, three or four, sometimes five in number."

Mr. Edwin Ashby's notes read: "Everywhere I have visited in the State of South Australia where there are salt bush (samphire) flats or other open country this cheerful little Chat has been numerous. I think I may say that I have found it nesting in every month of the year. While the situations preferred is practically on the ground, under some herbaceous plant or grass

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tuft we have found its nest often in our hay stacks. The parent is a good mimic of a wounded bird, trailing its wing behind it to attract the intruder away from the nest."

Mr. J. W. Mellor also writes: "The White-fronted 'Tin-tac' is the commonest of the group, and at the reed beds I have studied its habits very closely; it loves the open swampy plains, especially the salty samphire country, where it hops about over the ground in little flocks of six or eight, picking up the small insects upon which it solely subsists; it has a peculiar habit of bobbing its head up and down as it runs over the ground."

A fine series of close observations regarding the young have been sent me by Mr. H. Stuart Dove, from which I extract the following items: "Nest found on Oct. 9th; broad lip on one side of nest, as always with this species, forming a perching base; three eggs, all apparently quite fresh. On the 20th three young two days out, showing dark wing sprouts, ridge of tiny sprouts along back, head dark but bare, eyes closed; three wide yellow mouths gaped at me. Next day eyes open, wings sprouting well, short sprouts on head and along spine between shoulders; the queer metallic 'tang-tang' call of the parents is heard in the locality while the nest is under observation. On the 23rd the young had dark plumage on head and wings, light brown on back. On the 29th I found that two young had become suffocated owing to the depth of the nest, the third who was on top had thriven amazingly; the plumage was greyish-brown on upper surface like adult female, light grey breast with brownish mark across where the crescent is coming. This appears first as a brownish discoloration in the grey, gradually assuming the crescent form. On the 30th young had left nest; young was twelve days hatching to flying. On Nov. 1st young flying with parents; male took turns at sitting on eggs. I heard the male sing a pleasing little strain while sitting on a stump near the nest, also heard him utter what appeared to be the alarm-note, 'teet-tee-tee-teet.'" The usual call is 'tang-tang.' In another nest eggs were hatched on Oct. 24th and on November 4th nest was empty, young being just twelve days in nest. Another nest was found on Nov. 1st with three fresh eggs and on the 13th two young were found hatched, one of the young being much darker than the other, which was reddish and probably the last out. On Nov. 14th one young had disappeared and on the 15th the egg also was missing, leaving only one young one, which was perfectly naked, no down and blind, just a scaly appearance along spine. On 17th young still blind but sprouts showing, bill dark grey, gape yellow; on 19th eyes beginning to open; on 26th flew, with crescent more pronounced on breast so that probably it is a male; tail barely half an inch long, outside feathers brown, white in centre."

Mr. Tom Carter's notes read: "The White-fronted Chat is given by

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Mr. Mathews in his 1912 'List' as occurring throughout West Australia ; my experience of it, that it is only a casual visitor in some districts, because it was only observed in one year at Point Cloates, during a residence there of thirteen years and was never seen by me in the Gascoyne or other northern districts. On February 14th, 1899, some of my natives at Point Cloates called my attention to some 'new birds' that *they had never previously seen*. They were a few White-fronted Chats. A few of these birds were also seen on May 10th of the same year there. They are very common throughout the south-west, especially around Broome Hill. The Albany gardeners blamed them for eating small fruits such as currants. They were observed by me at Kellerberin. The breeding-season about Broome Hill is an extensive one, and I think they breed almost any time if the season is favourable for them. The nests are rather deep, and made of fine grass, built in a bunch of rushes or a small bush, from almost on the ground to three feet above it. Nests were found on Aug. 14, 1906, with three fresh eggs. Aug. 19, 1906: Nest with young (both in rushes). Sept. 26, 1906: Three eggs. Dec. 11, 1906: Fresh eggs. July 5, 1910: First one seen that year, in which they were very scarce. July 22, 1910: Three fresh eggs in prickly bush, three feet off ground. Oct. 9, 1910: Three fresh eggs. Aug. 21 and Oct. 13, 1912: Three eggs, which is the usual clutch. These birds feed on ground in small flocks, *running* in an active manner, and they constantly utter a double metallic sort of note."

Crossman wrote from Cumminin Station, West Australia: "Large parties of this little bird may be seen during the winter. The male bird assists the female during the period of incubation."

From Victoria Donald Thomson has recently published a fine long and accurate account of this species, giving good photographs of the female feeding and protecting young, concluding: "When nesting duties are over the White-fronted Chats associate together in small flocks or family parties, which roam the open paddocks in search of insect life, of which they must in the year destroy an incredible amount."

Legge has given a resumé of the knowledge of this species in Tasmania in the Emu, Vol. I., p. 83, 1902: "*Ephthianura albifrons* is a marked illustration in Tasmania of an exodus of certain species alluded to by Gould so many years ago. Climatic influence—great droughts, prevailing heavy rains, or sudden storms, and the like—cause, no doubt, those movements which locate species in a district or province wherein they were never before observed. In his 'Handbook' the author in question states that the *Ephthianura* is not found in Tasmania, though common in the Strait islands. That it should not, therefore, be found on the north coast (so far as I can ascertain) is remarkable, for its first appearance, as recorded, was in the Sorrell district, not far

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from Hobart. It was noticed there in the seventies, and from thence extended gradually to the midlands and along the east coast. About fifteen years ago it was first seen in the Ross district, and is now more abundant perhaps in the gorse flats in the valley of the Macquarie than anywhere else. To reach this part of the island it had high ranges to cross, probably taking in the flat lands above the Derwent, at Bridgewater, in its migration, for there it has for many years been firmly established. It delights in the gorse-covered paddocks on the Macquarie, and in the breeding-season every little isolated patch has its pair, with the young troop accompanying them, the male bird uttering its peculiar, lonely little note—'Pianng'—by way of warning to its brood. . . . In the locality of Falmouth it frequents the sand-dunes, open shore paddocks, raised pebble beaches, etc. It may be seen close to the tide line, flitting from boulder to boulder, and darting up several feet into the air at passing flies and insects. . . . The habits of this Chat are most interesting. During the breeding-season, when the female is aroused from its nest, it flies to the ground, and with extended and fluttering wings runs and tumbles along in the quaintest manner, trying by its gestures as a wounded bird to lead the traveller from its nest. It not only does not shun the presence of man, but rather courts it, as I have observed it on several occasions in the middle of the military camp at Ross."

This species was described under the genus name *Acanthiza* by Jardine and Selby, and ten years afterward Gould proposed the new genus *Epthianura* for it. Six years later Lesson, who did not recognise Gould's new genus nor Jardine and Selby's species, renamed it as a species of *Fluvicola*, giving it the appropriate specific name *leucocephala*. Almost simultaneously Brehm described a new genus and species, calling it *Cinura torquata*; these two names are both synonyms of the typical form. No subspecies were proposed until I arranged my "Reference List," when I distinguished three:

Epthianura albifrons albifrons (Jardine and Selby).

New South Wales, Victoria, South Australia.

Epthianura albifrons tasmanica Mathews.

Tasmania.

"Differs from *E. a. albifrons* in its darker coloration throughout."

Epthianura albifrons westralensis Mathews.

Wilson's Inlet, South-west Australia.

"Differs from *E. a. albifrons* in its paler coloration throughout."

These three I maintained in my 1913 "List" without alteration, and I have seen no comment upon them in any place.

Legge says this bird was only noticed in Tasmania in the seventies, but it was recorded as a Tasmanian bird in the fifties in the *Papers and Proceedings of the Royal Society of Van Diemen's Land*, Vol. III., pt. I., p. 145, January 1855.

GENUS—PAREPTHIANURA.

PAREPTHIANURA Mathews, Emu, Vol. XII., pt. 3,

p. 205, Jan. 1st, 1913. Type (by monotypy) *Ephthianura tricolor* Gould.

At the place quoted I pointed out the distinguishing characters as to coloration and I have reproduced them in connection with the preceding genus.

Structurally the bill is generally a little longer and the wing has the second, third, fourth and fifth primaries longest, the first very small and narrow, less than one-fourth the length of the preceding, the others regularly decreasing and the innermost equal to the secondaries; the tarsus is about the same length but the scutes are only obscurely seen on the front, while the hind-claw is shorter and more curved and the hind-toe and claw is shorter than the middle toe and claw.

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PAREPHTHIANURA TRICOLOR.

TRICOLOURED CHAT.

(PLATE 439 (left hand figures.))

EPHTHIANURA TRICOLOR Gould, Proc. Zool. Soc. (Lond.), 1840, p. 159, July 1841 : South Australia.

Ephthianura tricolor Gould, Proc. Zool. Soc. (Lond.), 1840, p. 159, 1841 ; *id.*, Birds Austr., pt. VII. (Vol. III., pl. 66), June 1st, 1842 ; *id.*, Handb. Birds Austr., Vol. I., p. 380, 1865 ; Ramsay, Proc. Linn. Soc., N.S.W., Vol. II., p. 186, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 667, 1883 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 30, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 284, 1901 ; Hall, Emu, Vol. II., p. 52, 1902 (N.W.A.) ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 347, 1904 ; Berney, Emu, Vol. IV., p. 44, 1904 (N.Q.) ; Lawson, *id.*, p. 135, 1905 (W.A.) ; Hartert, Nov. Zool., Vol. XII., p. 227, 1905 (N.W.A.) ; Hall and Rogers, Emu, Vol. VII., p. 139, 1908 (N.W.A.) ; Mathews, Handl. Birds Austral., p. 73, 1908 ; Whitlock, Emu, Vol. VIII., p. 181, 1908 (W.A.) ; Ogilvie Grant, Ibis, 1909, p. 680 (W.A.) ; Whitlock, Emu, Vol. IX., p. 197, 1910 (W.A.) ; S. A. White, *ib.*, Vol. XIII., p. 26, 1913 (S.A.) ; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 162, 1913 ; Barrett, Emu, Vol. XVI., p. 16, 1916 (N.S.W.).

Ephthianura tricolor tricolor Mathews, Nov. Zool., Vol. XVIII., p. 341, Jan. 31, 1912.

Ephthianura tricolor assimilis Mathews, *ib.*, : Lake Way, West Australia.

Ephthianura tricolor distincta Mathews, *ib.*, Alexandra, Northern Territory ; Montague, Proc. Zool. Soc. (Lond.), 1914, p. 634 (Monte Bello Island.).

Parephthianura tricolor Mathews, List Birds Austr., p. 207, 1913 ; S. A. White, Emu, Vol. XVIII., p. 21, 1918 ; *id.*, *ib.*, p. 197, 1919.

Parephthianura tricolor tricolor Mathews, List Birds Austr., p. 207, 1913.

Parephthianura tricolor assimilis Mathews, *ib.* Carter, Ibis, 1917, p. 588 ; *id.*, *ib.*, 1921, p. 56.

Parephthianura tricolor distincta Mathews, *ib.*

DISTRIBUTION. Australia generally, probably not extreme North ; Tasmania.

Adult male. Sides of face, sides of neck, hind-neck, back and wings greyish-smoke-brown, with pale edges to the feathers on the last ; tail-feathers dark brown tipped

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with white; crown of head, upper tail-coverts, breast, and abdomen scarlet-red; throat, middle of abdomen and long under tail-coverts white; under wing-coverts cinnamon like the inner margins of the quills below, remainder of quill-lining pale brown; lower aspect of tail dark brown with white tips to the feathers. Bill and feet black, eyes white. Total length 122 mm.; culmen 10, wing 67, tail 42, tarsus 19. Figured. Collected at Alexander, Eastern Northern Territory, on the 17th of December, 1905, and is the type of *Epthianura tricolor distincta*.

Adult female. Crown of head, sides of face, sides of neck, breast and sides of body fawn-colour; back pale smoke-brown; wings hair-brown with white or greyish-white margins to the feathers; the feathers of the rump tipped with white; upper tail-coverts scarlet-red; tail blackish-brown and tipped with white on the inner webs; throat, middle of abdomen and under tail-coverts white; under wing-coverts and inner edges of quills below pale cinnamon-buff, remainder of quill-lining hair-brown; lower aspect of tail dark brown with white tips to the feathers. Bill dark horn with lower base lighter; feet nearly black, eyes buff. Total length 115 mm.; culmen 11, wing 69, tail 39, tarsus 19. Figured. Collected at Bore Well, Mid-west Australia, on the 10th of August, 1909.

Nest. Cup-shaped, composed of grass and rootlets and lined with finer ones. Measurements outside 4 inches wide by $2\frac{1}{2}$ deep. Inside 2 inches by $1\frac{1}{2}$.

Eggs. Clutch, three or four. White, spotted sparingly with reddish-purple. 17 mm. by 12-13.

Breeding-season. October to December. (July to March, West).

ALTHOUGH Gould described this species from South Australia he wrote: "While traversing, soon after sunrise on the 11th of December, 1839, the forest lands near Peel's River to the eastward of Liverpool Plains, a fine male specimen of this bird attracted my notice by the beauty of its colouring, the sprightliness and activity of its actions, and the busy manner in which it was engaged in capturing small insects. As may be supposed, the sight of a bird of such beauty, which, moreover, was entirely new to me, excited so strong a desire to possess it that scarcely a moment elapsed before it was dead and in my hand. In a small collection procured in South Australia by the late F. Strange, two other specimens occurred which I supposed to be male and female; unfortunately they were unaccompanied by any information respecting the habits or economy of this rare bird; more recently, however, both G. French Angus (recte Angus) Esq., and Mr. White have favoured me with brief notes on the subject. 'A nest and eggs of the Tricoloured Ephthianura,' says Mr. Angus, 'were taken on the 27th of October, 1862, in a low bush at Evandale, about three miles from Collingrove, Angaston, South Australia. It had never been seen in that locality before, the farthest south being the head of Spencer's Gulf, where I obtained it in the scrub in September 1860.' 'This,' says Mr. White, 'is a very rare species; and from all I can learn, I imagine its true haunt to be in the far north and west of South Australia, and that it occasionally comes southward to breed. On a journey made in October

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last to the head of Spencer's Gulf and Mount Brown, I first observed it in a flock of ten or twelve males, females, and young birds, and at once saw that it was a species I had not previously noticed; and on inquiring in various northern localities found that it had not been seen by the residents until this spring. Those I saw were in the scrubby country on the western slopes of Flinder's Ranges, close to the head of Spencer's Gulf; they were hopping about on the low bushes and on the ground.' In another note by this gentleman he states that he saw this species and *E. aurifrons* in considerable numbers about latitude 27° and 28°."

It is appropriate that the next note should be by Captain S. A. White, the son of the Mr. White just mentioned, who has written to me that "this lovely little bird has its real home amidst the blue-grey salt and mulga bush of the interior; they have been known at rare times to visit the samphire flats as far south as Adelaide, but this is a rare occurrence. I have met with them in great numbers in the interior and they nest as soon as the green herbage springs up after the rain; their nesting habits are like those of other members of the family and the eggs show little or no variation. These birds, unlike the preceding, like open scrub lands with salt or blue bush, and are often to be seen perched in a mulga or myall tree; the call is more of a 'ting-ting.'"

Mr. Edwin Ashby notes: "I have seen this Chat at Nackara, on the Broken Hill line, and I believe it visits that locality in the nesting-season most years. Nearer Adelaide it is a somewhat rare visitor; probably it is on those occasions driven out of the more northern districts by drought. I have seen it in the mallee to the east of the River Murray, but in October 1909 it was nesting on the west side of the Murray near Mannum in considerable numbers. The nests were placed at the base of grass tufts or small herbs, both parents joining in their efforts to draw the intruder away from their nest by pretending to have a broken wing."

Mr. Sandland records: "Found sparingly at Balah, South Australia, in 1902, in great numbers 1903, absent 1904, 1905, sparingly in 1906, absent in 1907 and sparingly in 1908."

Mr. T. P. Austin states: "Strictly a migratory species at Cobbora, N.S.W., a few small flocks appearing in favourable springs, then it will probably be absent for years. Mostly met with feeding upon the ground, when disturbed they usually settle on thistles, fallen limbs, or low branches of dead trees. Their habits are very similar to those of the White-fronted species. In this district their nests are generally placed in thistles and are indistinguishable from the former. I have never seen a nest containing a clutch of more than three, and, with one exception, all the nests I have seen containing eggs have been in November, the other in October."

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With regard to the Tricoloured Chat Mr. Tom Carter has written me :
“ My experience is that, though it is recorded in your ‘ Reference List ’ as occurring generally through West Australia, it is confined to the northern parts, out of which it was never observed by me. It occurred in the North West Cape district in great numbers in some years, being one of the commonest birds, notably in 1898, which was a hurricane year. They were also numerous about Point Cloates and the Gascoyne districts in September 1913, when a bad drought generally prevailed, but local rains had fallen along the coastal areas, hence probably the appearance of the birds there. Although this beautiful species is usually associated with arid inland districts, the birds seem to be great drinkers when water is procurable. At Point Cloates, when the birds were present, they were drinking all day at the troughs for watering stock, and many were drowned by falling into the water. They were observed doing this both at Minilya and Point Cloates during my visit there in September 1913. The breeding-season is any time after rains have fallen. The nests are made almost entirely of fine grass and are built in the tops of low bushes, two to three feet from the ground, and frequently in large bunches of spinifex (*Triodia* or Porcupine Grass). Three eggs is the usual clutch, but four are not infrequently laid. These birds seem to be rather favourite hosts of *Chalcococcyx basalis*. July 14, 1891 : Nest with four eggs. March 6, 1898 : Three eggs and one of *C. basalis*. July 16, 1898, July 13, 1899 : Three eggs, latter in bunch of large spinifex. Aug. 24, 1913 : Two eggs incubated, male bird sitting on them. Also a nest noted containing small young. Sept. 16, 1913 : Four eggs incubated.”

Hall printed Rogers' notes made at Derby, North-west Australia, and included : “ On 10th February, 1900, I saw my first pair, the following day a half-dozen pairs. Possibly they are arriving at an end of their migration. They were feeding with Chestnut-eared Finches, but on black beetles and not on seeds, as were the Finches.”

Later Mr. Rogers studied the birds of the north-west on my account and sent me many valuable items, and I herewith add them as written.

Mr. J. P. Rogers' extensive notes read : “ Mch. 19, 1911 : For the first time since I started collecting for you at Derby I saw these birds ; a large flock were in a patch of timber. Mch. 20 : Several flocks passed the camp to-day and in the evening several parties were feeding on the edge of the plain. Mch. 23 : None seen since 20th. Mch. 27 : Several small flocks seen to-day. April 1 : Hundreds seen to-day were feeding near the timber on the narrow plain. April 8 : Are the commonest bird here now ; are in small flocks everywhere. April 13 : Very numerous at present. April 22 : Still numerous. These birds are only in this district occasionally and when they do come are found in immense numbers ; unfortunately I have no previous record of the

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dates of arrival and departure. Now they are feeding on the narrow plain between the scrub and the mangroves, usually in flocks, and mix freely with *Lalage tricolor* and *Artamus cinereus*, which frequent the same plain. . . . Up to the 28th May, 1911, at Marngle Creek these birds were numerous, and the number seemed to increase rapidly so that it became by far the commonest bird here. On the way over to Mungi Rock Hole, Jegurra Creek, these birds were in great numbers and at Mungi itself were numerous. On June 29, 1911, they were still in great numbers, but no male in adult plumage was seen until July 7, when one came in with a large flock of these birds to drink at a dam near Knowla Downs, Homestead, this being the only one seen to this date, *i.e.*, Aug. 1, 1911, at this dam many hundreds of these birds came to drink every morning at about 8 a.m. On the 8th and 9th July whilst travelling down Jegurra Creek I saw thousands of these birds, but on the Fitzroy there were very few. I spent several days travelling down the river at a very few miles per day, so am certain the birds had left. Whilst at Derby from the 25th to 31st July there were only a few stragglers. Numerous in May 1909 in the Wyndham district. This is the common Chat of this district but is quite an irregular migrant. I have also seen the *Ephthianura aurifrons*, but they have only been noted in two seasons and then only in very small flocks up to six or seven birds."

Berney, writing from North Queensland, stated: "The Tricoloured Bush-Chat is undoubtedly, I think, a migratory bird, but it is hard to distinguish its movements. It is in the district all the year round, but much more numerous in the winter, the influx commencing during March."

Söderberg has written an interesting account which may be reproduced here, as it should prove suggestive in connection with colour changes in other species: "*Moulting*. These specimens, adult and juvenal birds, were all in strong moulting. A comprehending of the observations shows an instance more of the kind of moulting which is described concerning the species *Lalage tricolor indistincta*. The red colour, just about to be developed, is obtained by partial colouring of the feathers. There are thus birds both with the change of plumage at very different stages and with very different development of the partial colouring of the feathers. Total colouring (red feathers in sheaths) is also seen. The juvenal, however, does not get all the feathers totally coloured in the first moulting. Some of them grow out and seem to remain with only a sprinkling of red, while others become entirely red, and others again lack every trace of it. Consequently we have the following cases: 1. The red colour is present as edgings at the point of the pale yellow-brown feather. 2. The red colour is found as spots, sprinkled in the pale yellow-brown part of the feather. 3. The feather is totally coloured (red). Birds

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belonging to the cases 1 and 2, with their feathers with varied colours, are distinguished also by the presence of new feathers, not red-coloured, but pale yellow-brown (in the same part of the plumage); but in case 3 there are no instances of mixed feathers at all. But a specimen was met with which had quite red crown-feathers as pins, mixed in with new and quite pale yellow-brown ones side by side. The appearance of the feather (from the head) is as follows: The base dark brown, after that a white, uncoloured part (though not in all cases), and then the pale yellow-brown part that forms the surface colour. Where red edgings are present these colours are found behind the red. But where this colour is augmented and comprises about half the feather the pale yellow-brown has disappeared. After the red part the white follows, sometimes very slightly developed. Feathers are found with a very differently developed red in the pale yellow-brown colour, and even only with white spots mixed in the dark part of the feather. In the breast-feathers, on the other hand, dark spots appear in the white part beneath the red one. Whether the red in such partly coloured feathers is not able to expand, as is said by Dr. Strong, when the feather, though grown out, is not old, is a question to which I have not had any opportunity of giving any attention. This bird migrates from south of Australia to the north during the winter. The moulting season for *Lalage* takes place during or shortly before breeding, but that of this form seems to come later on, shortly before they migrate (in March, April, May). *Ecological.* The first time this species was observed was in Hot Spring in the beginning of March, and in Derby at the end of the month. The season had come when migratory birds began to appear in Kimberley. At the coast of King's Sound the species lived in greater or smaller flocks, which got their food (according to specimens opened this consisted of small beetles, locusts and other insects) from the grass or on the part of the beach that is left exposed when the tide goes out. It was also common in Meda in the beginning of May, at Broome and in Beagle Bay in July. According to information received from Mr. van der Pfordten, who knew the bird life in the neighbourhood of Broome very well, the bird was also common there in March."

No subspecies were separated until in my "Reference List" in 1912 I recorded:

Epthianura tricolor tricolor (Gould).

New South Wales, Victoria, South Australia.

Epthianura tricolor assimilis Mathews.

"Differs from *E. t. tricolor* in its paler coloration throughout. Lake Way."

West Australia.

Epthianura tricolor distincta Mathews.

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“ Differs from *E. t. tricolor* in having the back grey instead of brownish-black.”

Alexandra, Northern Territory.

In 1913 I used the genus name *Parepthianura*, as in this place, and the same three subspecies were recognised, and they are still admissible.

GENUS—AUREPTHIANURA.

- AUREPTHIANURA Mathews, Emu, Vol. XII.,
 pt. 3, p. 205, Jan. 1st, 1913. Type (by
 subsequent designation) Mathews, List
 Birds Austr., p. 207, 1913 *Epthianura aurifrons* Gould.
- Kearlandia* Mathews, Austral Av. Record,
 Vol. III., pt. 4, p. 78, July 21st, 1917.
 Type (by original designation) *Acanthiza flaviventris* Ashby.
 = *Epthianura aurifrons* Gould.

WHEN I proposed the above generic name, *Aurepthianura*, I gave a resumé of the apparent relationships of the species previously associated under the genus name *Epthianura*, and noted the coloration of the forms.

In structure the bill somewhat agrees with that of the preceding; the wing has a very small first primary, which is less than one-fourth the length of the longest primaries; the third and fourth ones subequal and longest, the second and fifth equal and a little shorter; the sixth and seventh decrease regularly and the latter is equalled by the secondaries. The tail is square and the long tail-coverts, both upper and under, are about equal to half the length of the tail-feathers. The legs are thin and the anterior scutation is too obscure to show any apparent booting; the claws are long and shallow, the hind-claw especially, while the toes are small and slender.

AUREPTHIANURA AURIFRONS.

ORANGE-FRONTED CHAT.

(PLATE 440, right hand figures.)

EPHIANURA AURIFRONS Gould, Synops. Birds Austr., pt. iv., App., p. 4, April 1st, 1838 :
Interior New South Wales.

Epthianura aurifrons Gould, Synops. Birds Austr., pt. iv., App., p. 4, April 1838 ; *id.*,
Proc. Zool. Soc. (Lond.), 1837, p. 148, Dec. 1838 ; *id.*, Birds Austr., pt. vii. (Vol. III.,
pl. 65), June 1st, 1842 ; *id.*, Handb. Birds Austr., Vol. I., p. 380, 1865 ; Ramsay,
Proc. Linn. Soc., N.S.W., Vol. II., p. 186, 1878 ; Sharpe, Cat. Birds Brit. Mus.,
Vol. VII., p. 668, 1883 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key
Birds Austr., p. 30, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 285,
1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 349, 1904 ; Mathews, Handl.
Birds Austral., p. 73, 1908 ; Whitlock, Emu, Vol. IX., p. 197, 1910 (W.A.) ;
Macgillivray, *id.*, Vol. X., p. 31, 1910 (N.S.W.) ; S. A. White, *id.*, Vol. XIII., p. 26,
1910 (S.A.) ; Chandler, *ib.*, p. 40 (Vic.) ; Witmer Stone, Austral Av. Rec., Vol. I.,
pts. 6-7, p. 162, 1913 ; Barrett, Emu, Vol. XVI., p. 17, 1916 (N.S.W.) ; Ashby,
ib., p. 233, 1917 (S.A.).

Acanthiza (Geobasileus) flaviventris Ashby, Emu, Vol. IX., pt. 3, p. 137, Jan. 1st, 1910 :
Lake Frome, South Australia.

Epthianura aurifrons aurifrons Mathews, Nov. Zool., Vol. XVIII., p. 341, Jan. 31st, 1912.

Epthianura aurifrons flavescens Mathews, *ib.*, Lake Way, West Australia.

Epthianura aurifrons obsoleta Mathews, *ib.* : Alexandra, Northern Territory.

Acanthiza flaviventris Mathews, *ib.*, p. 352, 1912.

Aurepthianura aurifrons Mathews, List Birds Austr., p. 208, 1913 ; S. A. White, Emu,
Vol. XVIII., p. 22, 1918 ; *id.*, *ib.*, p. 197, 1919.

Aurepthianura aurifrons aurifrons Mathews, List Birds Austr., p. 208, 1913.

Aurepthianura aurifrons flavescens Mathews, *ib.* ; Carter, Ibis, 1921, p. 57.

Aurepthianura aurifrons obsoleta Mathews, *ib.*

Geobasileus flaviventris Mathews, List Birds Austr., p. 219, 1913.

Geobasileus ashbyi Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 61, April 7th, 1916 : new
name for preceding only.

Kearlandia flaviventris Mathews, *ib.*, pt. 4, p. 78, July 21st, 1917.

DISTRIBUTION. Interior of Australia generally.



H. Grönvola. del.

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AUREPETHIANURA AURIFRONS
(*ORANGE-FRONTED CHAT*)

AUREPETHIANURA CROCEA
(*YELLOW-BREASTED CHAT*)

ORANGE-FRONTED CHAT.

Adult male. Crown of head, breast, abdomen and sides of body orange colour; ear-coverts, sides of neck, thighs, and under tail-coverts yellow; under wing-coverts similar but paler; throat, cheeks, and feathers in front of the eye black; back, wings, and tail dark brown, or blackish with yellow or white fringes to the feathers; upper tail-coverts uniform orange-yellow; under-surface of flight-quills dark brown with pale edges; lower aspect of tail dark brown with buffy-white tips to the feathers and white margins to the outermost one on each side. Bill black, eyes Indian red, feet and legs deep lead-grey. Total length 102 mm.; culmen 10, wing 65, tail 35, tarsus 19. Figured. Collected at Lake Way, mid-West Australia, on the 19th of August, 1909, and is the type of *E. a. flavescens*.

Adult female. Head, back, and wings earth-brown with dark brown bases to the feathers; upper tail-coverts dull yellow, tail blackish-brown with buffy-white tips and margins to the feathers; sides of face and sides of neck fawn colour like the upper-breast; lower-breast, abdomen, sides of body, thighs, and under tail-coverts dull yellow; under wing-coverts fawn-buff; under-surface of flight-quills and lower aspect of tail dark hair-brown. Bill black, eyes Indian red, feet and legs lead-grey. Total length 115 mm.; culmen 10, wing 64, tail 41, tarsus 18. Collected at Lake Way, mid-West Australia, on the 19th of August, 1909.

Adult female. Crown of head, back, scapulars, and lesser upper wing-coverts dull fawn-brown; middle portion of the feathers of the median and greater upper wing-coverts hair-brown; bastard-wing, primary-coverts, and flight-quills dark hair-brown fringed with citron-yellow, with pale inner margins to the last; rump, upper tail-coverts and base of tail yellow like the abdomen, sides of the body, and under tail-coverts; apical portion of the tail blackish, the feathers fringed with white, or greyish-white; sides of the face and breast similar to the top of the head but paler and brighter; throat and fore-part of cheeks dull white; under wing-coverts whitish-buff; under-surface of flight-quills pale hair-brown; lower aspect of tail similar with white, or yellowish-white margins to the feathers. Wing 63 mm.; tarsus 19. Figured. Collected at Lake Frome, South Australia, in September 1909, and is the type of *Acanthiza (Geobasileus) flaviventris* Ashby.

Immature. Resemble somewhat the adult female.

Nest. A compact cup-shaped one, composed of grasses and rootlets and lined with finer moss, placed on the top of a salt-bush. Outside measurements $3\frac{1}{2}$ inches by 2 deep. Inside $2\frac{1}{4}$ inches by $1\frac{1}{2}$.

Eggs. Clutch, three. White, dotted all over, but more at the larger end, with purplish-red dots. 17-18 mm. by 13-14.

Breeding-season. September to February.

GOULD described this bird from the interior of New South Wales and later wrote: "Skins of this species, which were very rare when I first described it, are now common, being sent in abundance from Victoria; that it also inhabits South Australia we know from the circumstance of Mr. White informing me that, in an ornithological trip made by him to the north of Adelaide, he saw this bird in great numbers from Port Augusta to the 27th degree of latitude; he states that it lives chiefly on caterpillars, builds in low scrubs, and that the eggs, which are four or five in number, are white or pinkish-white spotted with rust-red."

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Captain S. A. White, the son of the Mr. White noted above, has written me: "This is also a bird of the dry country, but like *E. albifrons*, likes the salt bush and samphire plains; its habits are like those of the other two Chats, and I have seen it as far south as the Reed beds, but only on rare occasions; it shifts according to food supply."

Mr. J. W. Mellor states: "The Yellow Tintac was also found on the Adelaide Plains at the Reed beds in the early days, but has now quite departed, and does not come so far south here. I have seen it plentiful at Port Augusta at the head of Spencer's Gulf, also at Port Pine and at Port Germein, both on the eastern shores of Spencer's Gulf. I have always found it on the open bleak samfire salt swamps bordering the sea coast, where it runs rapidly over the open land seeking out the little insects and flies that are in these moist localities; it does not resort to long flights, but when flushed it merely flies a short way and settles again, running with remarkable rapidity over the salt ground and between the lumps of growing samfire; its habits are somewhat similar to those of the White-fronted Tintac, going in little covies of half-dozens or in pairs. In the interior the birds like the same situations in the salt and samfire swampy flats surrounding the brackish inland lakes. The breeding-season of the bird differs according to locality, as in the southern latitudes they keep fairly well to the spring months, August to November, but in the dry interior they seem to lay when the rainy season comes round."

Mr. Edwin Ashby writes to the same effect: "While in the early days this bird was not uncommon on the flats between Adelaide and the sea-coast it has not been seen there for many years, but it still occurs on the samphire flats twenty-five miles north of Adelaide, where I have seen small flocks. I have collected it at Nackara and Port Pirie and have skins sent me from Leigh's Creek. I also saw it in fair numbers near Venus Bay, towards the West Australian border in the Great Bight. It is a bird of the samphire and salt bush flats, searching for food on the ground in small flocks."

From Macgillivray's most interesting article on the Region of the Barrier Range is extracted: "We now entered upon sandy country more scrubby in character, but the scrub was very open; it consisted of turpentine bush, blue and salt bush. White-winged Wrens and Tricoloured Chats were plentiful, and a few Orange-fronted Chats, the 'Saltbush Canary' of bushmen, were seen. We made our camp near a large open swamp on which were a few Ducks. The country we had walked through has been a deep, loose sandy soil, drifted into hillocks and ridges in places, and supporting a perennial vegetation of salt bush, blue bush and turpentine. The herbage was very good, and comprised a number of flowering annuals; the deep sandy soil seems to suit them. Scorpions and ground-dwelling spiders were numerous,

ORANGE-FRONTED CHAT.

and lizard tracks were everywhere on the soft sand. There were many Tricoloured and Orange-fronted Chats and Brown Song-Larks. The Orange-fronted Chat keeps more to the open salt bush country than does the Tricoloured, which is often met with along the watercourses, where the herbage is taller and grows more closely, and amongst the rank growth and scrub on the creek flats. This year the Tricoloured Chat was everywhere more numerous than its congener. The White-fronted Chat usually winters here when the other two species have gone north, but goes south before the spring months. . . A nest of *E. aurifrons* with three young birds was found. The feathers were just sprouting on the nestlings—colour, brown; eyes not open; gape orange with two black spots on either side of the tongue, like the young of *E. tricolor*."

Mr. Tom Carter's notes read: "The Orange-fronted Chat occurs rather sparingly in the coastal areas of the Gascoyne and North-west Cape districts. It seems particularly partial to the 'samphire' flats that occur in the vicinity of the coastal salt marshes. As with *Epthianura tricolor*, they were much more numerous in some years than in others. The nests are usually built from one to three feet from the ground in a low bush, such as a samphire or salt bush, and are built of fine grass and a few small twigs. The usual clutch of eggs is three, but occasionally four are laid."

Whitlock's notes on the birds of the East Murchison, West Australia, read: "Much commoner than the Tricoloured Chat. I even saw them in the streets of Wiluma. In the samphires around Lake Violet they were numerous, and I found a dozen nests without troubling to hunt for them. Some contained three eggs, others only two. The parent birds sat close, and would return to the nest whilst I was near. I more often flushed the male from the nest than the female. Perhaps the latter takes her turn at night. All the nests were low down, but seldom actually on the ground. This species was breeding near Milly Pool, but it was distinctly rare there. I was timing the period of incubation in one instance. I called at the nest just when I expected the young to be hatched and found it empty."

In the *Emu*, Vol. IX., p. 137, 1913, Ashby described a new species under the name *Acanthiza* (*Geobasileus*) *flaviventris* with the remarks: "*Acanthiza flaviventris* differs from *A. chrysorrhoa* in the typical white spots on the forehead, face and ear-coverts being entirely absent; in the general buff coloration, yellow abdomen and under tail-coverts. A specimen of *A. chrysorrhoa* in the Adelaide Museum, obtained in the McDonnell Ranges, while having the somewhat faded appearance usual to desert forms, does not materially differ from the normal type, and is considerably smaller than the species under review. The specimen now described was kindly given to me by Mr. Francis E. Starr, of Adelaide, who had received it in September last with other

THE BIRDS OF AUSTRALIA.

specimens in a like bad state of preservation from Lake Frome, in the interior of South Australia. I suggest the name of *A. flaviventris* as being descriptive of the yellow abdomen, and the vernacular name of Plain-fronted Tit as being descriptive of the absence of the freckled markings on the fore-head that are so characteristic of this genus."

The specimen was given to me by Mr. Ashby for the purpose of describing and figuring in this work, and it was obviously distinct, though being a formalin preserved specimen was in very poor condition. I renamed it *Geobasileus ashbyi*, as an *Acanthiza flavigaster* had been previously proposed, and it had been a custom of purists to claim these names as equivalent. Later I proposed for it the new genus name *Kearlandia*, leaving for the present opportunity the task of characterising and distinguishing the genus. It was with great surprise when I undertook this that I found the generic characters to agree with *Aurepthianura*, and upon comparison it became obvious that the supposed "*Acanthiza*" was the female of *Aurepthianura aurifrons* and, moreover, from the type locality of Gould's species. Accepting blame for my blunder I must make excuse that I did not anticipate such an error on Ashby's part. I have now figured and described Ashby's type.

As it is a rare interior dwelling bird no subspecies were named until I prepared my "Reference List" in 1912, when I arranged them so, and the only emendation since has been the usage of the genus *Aurepthianura*.

Epthianura aurifrons aurifrons Gould.

Interior of New South Wales, Victoria and
South Australia.

Epthianura aurifrons flavescens Mathews.

"Differs from *E. a. aurifrons* in its paler coloration, the back being yellow with dark shaft-streaks rather than olive as is the type."

Interior of West Australia.

Epthianura aurifrons obsoleta Mathews.

"A pallid form, differing from *E. a. aurifrons* in its paler under-surface which is lemon rather than orange, the head scarcely yellow, and the back with brown shaft-streak and pale yellow edgings to feathers."

Interior of Northern Territory.

GENUS—LEACHENA.

LEACHENA Mathews, Austral Avian Record,

Vol. III., pt. 3, p. 60, April 7th, 1916.

Type (by original designation) ... *Epthianura crocea*

Castelnau and Ramsay.

WHEN I wrote about the *Epthianuræ* in 1913 I included this species with *Aurepthianura*, as the coloration was similar, but later I noted that very different habits were recorded, and again looked at the birds with better knowledge and at once proposed the above genus, as the observed differences were more than in connection with the other genera.

The bill is similarly formed but stouter; the wing is quite of a different style, the first primary being short but nearly half the length of the second, which is less than the third; the seventh is about equal to the second, while the third, fourth, fifth and sixth are subequal and longest; the secondaries are comparatively long, being equal to the ninth primary. The tail is long and a little rounded, the tail-coverts not quite reaching to half the length the tail-feathers. The tarsus is rather strongly scutellate in front and the claws are long and little curved.

LEACHENA CROCEA.

YELLOW-BREASTED CHAT.

(PLATE 440, left hand figures.)*

EPHIANURA CROCEA Castelnau and Ramsay, Proc. Linn. Soc. N.S.W., Vol. I., p. 380, March 1877: Norman River, Queensland.

Epthianura crocea Castelnau and Ramsay, Proc. Linn. Soc. N.S.W., Vol. I., p. 380, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 669, 1883; Ramsay, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. II., p. 168, 1887; *id.*, Tab. List Austr. Birds, p. 9, 1888; Gould, Birds New Guinea, pt. xxiv. (Vol. III., pl. 14), 1888; Hall, Key Birds Austr., p. 30, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 286, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 352, 1904; Hartert, Nov. Zool., Vol. XII., p. 227, 1905 (N.W.A.); Mathews, Handl. Birds Austral., p. 73, 1908; Macgillivray, Emu, Vol. XIII., p. 171, 1914 (N.Q.); Campbell, *ib.*, Vol. XVII., p. 61, pl. xi., 1917.

Epthianura crocea crocea Mathews, Nov. Zool., Vol. XVIII., p. 342, Jan. 31, 1912.

Epthianura crocea tunneyi Mathews, *ib.*; Arnhem Land=Alligator River, Northern Territory; *id.*, South Austr. Ornith., Vol. 3, p. 140, 1918.

Aurepthianura crocea crocea Mathews, List Birds Austr., p. 342, 1913.

Aurepthianura crocea tunneyi Mathews, *ib.*

Leachena crocea Mathews, Austral Av. Record, Vol. 3, p. 60, 1916.

Leachena crocea crocea Mathews, *ib.*

Leachena crocea tunneyi Mathews, *ib.*

DISTRIBUTION. North Queensland, Northern Territory; North-west Australia.

Adult male. Fore-part of head dull crocus-yellow, fading into dark earth-brown on the hind-neck and back with dark shaft-streaks on the latter; upper wing-coverts and inner secondaries blackish with yellow or whitish margins to the feathers; primary-quills rather paler and almost uniform; rump and upper tail-coverts crocus-yellow; tail-feathers blackish, broadly margined with buffy-white at the tips; ear-coverts like the crown; a dark mark in front of the eye; throat, breast, under tail-coverts, axillaries, and under wing-coverts pale crocus-yellow, somewhat darker on the sides of the body; a blackish band across the fore-neck; under-surface of flight-quills dark brown; lower aspect of tail blackish with whitish tips to the feathers. Bill black, eyes white, feet brown. Total length 130 mm.; culmen 11, wing 61, tail 37, tarsus 19. Figured. Collected on the Alligator River, Northern Territory, on the 29th of September, 1903, and is the type of *E. c. tunneyi*.

* This Plate is lettered *Aurepthianura crocea*.

YELLOW-BREASTED CHAT.

Adult female. Crown of head, nape, back, scapulars, and lesser upper wing-coverts dark brown with an olive tinge; median and greater upper wing-coverts, bastard-wing, primary-coverts, and inner secondaries edged with dull white, or olive; primary-quills hair-brown slightly edged with very pale yellow on the outer webs; rump and upper tail-coverts dull yellow; tail-feathers blackish fringed with buffy-white at the tips; lores and sides of face whitish tinged with yellow; throat, breast, abdomen, flanks, thighs, and under tail-coverts yellow; under wing-coverts pale buff tinged with yellow; under-surface of quills hair-brown with pale margins; lower aspect of tail similar with buffy-white tips to the feathers. Bill and feet grey, eyes white. Total length 95 mm.; culmen 11, wing 59, tail 34, tarsus 19. Figured. Collected at Normanton, Gulf of Carpentaria, Queensland, on the 17th of October, 1913.

Nest. Cup-shaped, composed of grasses and rootlets and lined with finer ones. Very similar to that of *aurifrons*, and the same size. Placed in a low bush.

Eggs. Clutch, three. White, dotted all over purplish-red dots. 15-16 mm. by 11.

Breeding-season. November to January.

DISCOVERED by Mr. T. A. Gulliver, of Townsville, at Normanton, this beautiful species was named by Castelnau and Ramsay. Probably the next naturalist to meet with the species was the enthusiastic but ill-fated young English ornithologist, Bowyer-Bower, whose notes I reproduced in the *South Australian Ornithologist*, and here add.

"These birds allow one to get quite near, and then fly off to a small bush not far distant. They are always found on a kind of salt bush which grows near the lagoon in some 4 or 5 inches of water. They appear to feed on insects, after which they carefully look over the small bushes.

These birds were seen flitting along some strong weedy grass growing out of the water, and appear to hang therefrom and peck insects off the water. They utter a very simple call note, but no song. When disturbed they take safety in some grass some 50 yards from the swamp."

Keartland has written: "Whilst camped beside a lagoon about four miles from the Fitzroy River, North-western Australia, and nearly opposite Noorkoombah Station, I saw a great many examples of *Ephthianura crocea*. Their yellow plumage and black band at once attracted attention, but the mode of life was very different from that of *E. aurifrons*. Whilst the latter delights in searching for its insect food amongst salt bush or on the ground, *E. crocea* is more at home in the branches of trees about 15 or 20 feet high, where it hops about searching for insects, either in the bark or on the foliage. Occasionally the birds may be seen on the ground. They do not appear to associate in flocks like any of the other species of the genus, but each works on its own account. Their nests are built in the usual cup-shaped form, and the one from which my set of eggs was taken was placed in a thistle about four feet high."

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Price Fletcher, however, has recorded that in the neighbourhood of the Gulf of Carpentaria (the type locality) he usually observed them frequenting marshy and long grassy swamps instead of dry plains as do the other *Ephthianuras* or Bush-Chats.

The two subspecies I separated in 1912 are still recognisable as :

Leachena crocea crocea (Castelnau and Ramsay).

Interior of Queensland.

Leachena crocea tunneyi (Mathews).

A deeper coloured bird.

Interior of Northern Territory (Arnhem Land)
and North-west Australia.

GENUS—ASHBYIA.

ASHBYIA North, Agric. Gazette, N.S.W.,
Vol. XXII., pt. 3, p. 211, March 2nd,
1911. Type (by original designation) ... *Ephthianura lovensis* Ashby.

WHEN North introduced this genus he characterised it thus: "Like *Ephthianura*, to which it is possibly allied, but it is easily distinguished from that genus by its larger and more robust bill, especially at the base, and its longer and more pointed wings."

In the *Emu*, Vol. XII., p. 204, 1913, this species and genus was discussed by me when a coloured plate was given, and I wrote: "The present species would be referable to this group (*Ephthianuræ*) by its coloration, though it is easily characterised by its superior size and heavy bill. In its upper coloration it lacks the yellow rump, and it has the under-surface more distinctly greenish-yellow throughout, this colour re-appearing on the lores and on the supercilious eye-streak, though a buff tinge washes the sides of the breast."

Order PASSERIFORMES.

No. 524.

Family TURDIDÆ.

ASHBYIA LOVENSIS.

DESERT CHAT.

(PLATE 441.)

EPHETHIANURA LOVENSIS Ashby, Emu, Vol. X., pt. 4, p. 251, Jan. 21st, 1911: Leigh's Creek, South Australia.

Ephethianura lovensis Ashby, Emu, Vol. X., p. 251, 1911; Mathews, Nov. Zool., Vol. XVIII., p. 342, 1912; *id.*, Emu, Vol. XII., p. 204, pl. E., 1913; S. A. White, *ib.*, Vol. XVI., p. 165, 1917.

Ashbyia lovensis North, Agric. Gazette, N.S.W., Vol. XXII., pt. 3, p. 211, March 1911; *id.*, Emu, Vol. X., p. 346, 1911; S. A. White, Trans. Roy. Soc. S.A., Vol. XXXIX., p. 752, Dec. 1915; *id.*, *ib.*, Vol. XLI., p. 458, March 30th, 1918; *id.*, Emu, Vol. XIV., p. 188, 1915; Waite, p. 167, pl. xxx., 1917. McGilp, *id.*, Vol. XIX., p. 56, 1919.

Ashbyia lovei North, Agric. Gazette N.S.W., Vol. XXII., pt. 3, p. 211, March 1911; emendation only.

Ashbyia lovensis whitei Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 90, July 7th, 1916: Mary's Well, 12 miles east of Todmorden Camp, Central Australia.

DISTRIBUTION. Interior of South Australia.

Adult male. General colour of the upper-surface sandy-buff including the top of the head and nape, sides of face, sides of neck, back, and upper tail-coverts and wings; flight-quills pale hair-brown margined with sandy-buff, becoming darker and inclining to blackish on the innermost secondaries; tail blackish-brown with buffy-white fringes to the feathers; base of fore-head yellow; throat and under tail-coverts pale sulphur-yellow; breast and sides of body pale sandy-buff; abdomen and thighs yellow; axillaries and under wing-coverts yellowish-white; under-surface of flight-quills hair-brown with pale margins; lower aspect of tail similar to its upper-surface. Bill leaden-black, feet ashy-grey; eyes white. Total length 123 mm.; culmen 11, wing 75, tail 42, tarsus 22. Figured. Collected at Mary's Well, 12 miles east of Todmorden, in Central Australia, on the 6th of September, 1914, and is the type of *Ashbyia lovensis whitei*.

Adult female. General colour of the upper-surface sandy-buff including the crown of the head, ear-coverts, sides of neck, hind-neck, entire back, upper tail-coverts and wings; inner webs of flight-quills sandy-brown with rather paler margins, some of the innermost secondaries tipped with buffy-white; tail hair-brown with buffy-white margins to the feathers; lores and feathers above the eye, cheeks and throat pale yellow; breast and sides of body sandy-buff; abdomen yellow,



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ASHBYIA LOVENSIS
(DESERT BUSH-CHAT)

DESERT CHAT.

becoming paler on the under tail-coverts; axillaries and under wing-coverts pale buff, like the inner edges of the quills below, remainder of the quill-lining pale brown; lower aspect of tail similar to its upper-surface but rather paler. Bill leaden-black, feet ashy-grey; eyes white. Total length 122 mm.; culmen 11, wing 72, tail 39, tarsus 21. Figured. Collected at Mary's Well, 12 miles east of Todmorden, Australia, on September 6th, 1914. The sexes are practically alike.

Nest. "A deep, neat structure built in a comparatively deep hole, the rim extending or overlapping all round and slightly higher than the level of the ground. Constructed with small twigs and dry grass, neatly lined with rootlets." (S. A. White.)

Eggs. "Clutch, three. Ground-colour yellowish-white, reddish-brown spots are clustered round the larger end and sometimes these are scattered over the smaller end, 20 mm. by 15." (*ib.*)

Breeding-season. May to October or after rain.

THE describer of this new species to whom the genus was later dedicated, Mr. Edwin Ashby, has sent me the following note: "The type specimens were sent down to me by Mr. J. R. B. Love, B.A., from Leigh's Creek, South Australia, in December 1910, with the note that several of these strange birds had visited the Creek, and that they ran about the ground continually wagging their tails in a similar manner to that of the Australian Pipit. One specimen when chased by a schoolboy ran into a rabbit burrow. In describing the bird I pointed out that I only provisionally placed it under the genus *Ephthianura*, as it seemed nearer allied to that genus than to any other of our Australian genera. There is little doubt that it comes as far south as Leigh's Creek, but rarely. Mr. J. N. McGilp informs me that they are always on their station, Moolawatana, Lake Frome, and that the birds nest in little groups, having found as many as six nests quite near to one another, whereas there might not be any nearer than some miles. He also found that on his taking the first clutch of eggs that was laid all the birds in that group deserted their nests."

Captain S. A. White has written me: "This is a lover of the stony tablelands of the dry interior; the coloration of their upper-surface harmonises so wonderfully with the gibber stones which are stained with oxide of iron. I have traced their range from 60 miles west of Oodnadatta to Lake Frome. They are much like the Pipit in habits."

The nest and eggs were discovered by the members of an exploring expedition from the South Australian Museum and were described by Captain S. A. White and also by Edgar Waite, the latter being the actual finder. Waite's notes read: "The Desert Chat was found only in the gibber country, and was nowhere very common. Though the breast of the bird is bright yellow, the colour is not specially noticeable, while its brown back

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harmonizes so well with the colour of the stones, tempered with that of the sand, that a sitting bird must be quite inconspicuous. That the bird relies on such similarity to its surroundings when sitting is evidenced by its actions. . . . I flushed one Desert Chat. The little bird did the 'broken wing' trick very well indeed, and fluttered away, while I remained stationary."

A little later a good note was published by J. Neil McGilp from Moolawatana, Copley, South Australia (Interior), who wrote: "Though I have only been collecting since May 1918, I have always been interested in birds, and knew of the Desert Chat some years ago, but did not know its name until Capt. White asked me to look out for it last year (1918). The name Desert 'Bush' Chat is rather misleading, for the bird rarely takes to the low bushes, spending most of its time on the ground. The call of the Desert Chat is rather a plaintive, piping call, but mostly used at breeding-time, just before nesting. I have often seen this bird mount high in the air, almost perpendicular, with the same motion of wings as the Song-Lark, but it invariably returns to earth in a falling sort of way to almost the same spot as it left the ground. All the time of ascending it gives a sharp "Whit-whit-whit,"; at other times, when calling its mate, it gives a sweetly pretty song. The bird generally nests after first rains, but also in September. The clutch in good seasons is mostly three, but in poor years two is the usual setting. On 21st April, 1919, we had a nice rain which continued on to 22nd April, thus breaking a drought since June 1918. On 25th April (three days after rain) I was fortunate to find a pair of Chats, their habits leading me to hunt for a nest. I found a round hole scooped out just alongside a small, dry annual salt bush, depth about 3 inches. Thinking this the start of a nest I had a look at the spot the following day, and found a partly built nest—some twigs and pieces of wool—but in no way rounded out. . . . On 30th April I found the nest completed. . . . On 2nd May . . . I found one egg. On 3rd May I again called in at nest, and found two eggs, the bird leaving quietly at my approach. . . . On 5th May I visited the nest, and when about five yards away the female fluttered off the nest, pretending lameness and flattening itself to the ground within three feet of me. I have noticed previously that the Desert Chat does not pretend lameness unless she is sitting; until a full clutch is laid she only hops out of the nest and stands a few yards away."

GENUS—CONOPODERAS.

CONOPODERAS Billberg, Synops. Faunæ Scand.,
Vol. I., pt. II., Tab. A., 1828 (*cf.* Austral Av.
Rec., Vol. II., pts. 2 and 3, p. 38, 1913). Type
(by monotypy)

Turdus longirostris Gmelin
=*Sitta caffra* Sparrman.

Tatare Lesson, Traité d'Orn., livr. 4, p. 317,
Sept. 25, 1830. Type (by tautonymy) ...

Tatare otaitensis Lesson
=*Sitta caffra* Sparrman.

MEDIUM-SIZED Warblers with long stout bills, rounded wings, long rounded tail and long legs with small feet.

The bill is as long as the head, rather stout, but laterally compressed, the tip slender, decurved, notched posteriorly, basally a little expanded and the sides flattened, the culmen ridge arched and semi-keeled; the nasal groove is not pronounced, the linear nasal apertures being operculate and the frontal feathers project a little forward but do not obscure the nostrils. There are three long strong rictal bristles but no nasal bristles; the lower mandible stout, as deep as upper, small interramal feathered space, about one-third length of mandible, gonys quite notably ascending.

The wing rounded, the first primary minute, shorter than the primary-coverts, the third and fourth primaries equal and longest, the fifth a little shorter and the sixth still regularly decreasing and equal to the seventh, the rest rapidly decreasing, secondaries short.

The tail is composed of twelve feathers and rounded in shape, the coverts, both upper and under, about half the length of the tail-feathers.

The legs are long and slender, but not twice the length of the culmen; five scutes can be counted in front, but often they are nearly obsolete, posteriorly bilaminate; the middle toe is longest, the outer longer than the inner, claws long and curved; the inner toe and claw is about equal to the mid-toe without claw; the hind-toe is strong and the claw is long, the hind-toe and claw being longer than the middle toe and claw.

CONOPODERAS AUSTRALIS.

REED-WARBLER.

(PLATE 442.)

CALAMOHERPE AUSTRALIS Gould in Lewin's Nat. Hist. Birds N.S.W. (ed. Eyton). Index to synonyms to plate 18, Reed-Warbler, 1838 : Parramatta, New South Wales.

Sylvia arundinacea Lewin, Birds of New Holland, pl. xviii., 1808, not *Turdus arundinaceus* L.

Calamoherpe australis Gould in Lewin's Nat. Hist. Birds N.S.W. (ed. Eyton), Index, 1838 ; *id.*, Handb. Birds Austr., Vol. I. p. 402, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878 ; *id.*, Tab. List. Austr. Birds, p. 10, 1888.

Calamoherpe longirostris Gould, Proc. Zool. Soc. (Lond.), 1845, p. 20, April : King George's Sound, West Australia.

Not *Turdus longirostris* Gmelin, Syst. Nat., Vol. I. p. 823, 1789, which = *Sitta caffra* Sparrman, the type of the genus.

Gould, Handb. Birds Austr., Vol. I., p. 403, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878 ; *id.*, Tab. List Austr. Birds, p. 10, 1888 ; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 163, 1913.

Acrocephalus longirostris Gould, Birds Austr., pt. xxiv. (Vol. III., pl. 38), Sept. 1st, 1846 ; Diggles, Ornith. Austr., pt. xiv., 1867 ; Seebohm, Cat. Birds Brit. Mus., Vol. V., p. 99, 1881 ; Hall, Key Birds Austr., p. 20, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 183, 1901.

Acrocephalus australis Gould, Birds Austr., pt. xxvii., Vol. III., pl. 37, June 1st, 1847 ; Diggles, Ornith. Austr., pt. xiv., 1867 ; Seebohm, Cat. Birds Brit. Mus., Vol. V., p. 100, 1881 ; Hall, Key Birds Austr., p. 20, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 181, 1901 ; Legge, Emu, Vol. I., p. 84, 1902 (Tas.) ; Hill, *ib.*, Vol. II., p. 164, 1903 (Vic.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 238, 1904 ; Berney, Emu, Vol. V., p. 73, 1905 (N.Q.) ; Dove, *ib.*, Vol. VII., p. 158, 1908 (Tas.) ; Mathews, Handl. Birds Austral., p. 73, 1908 ; Dove, Emu, Vol. VIII., p. 67, 1908 (Vic.) ; Littler, Handb. Birds Tasm., p. 29, 1910 ; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 163, 1913 ; Macgillivray, Emu, Vol. XIII., p. 171, 1914 (N.Q.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 26, 1917 (N.Q.).

Acrocephalus gouldi Dubois, Synops. Avium, Vol. I., fasc. vi., p. 369, 1901 : new name for *C. longirostris* Gould, preoccupied ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 241, 1904 ; Mathews, Handl. Birds Austral., p. 73, 1908.



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CONOPODERAS AUSTRALIS
(SOUTHERN REED-WARBLER)

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Tatara australis Oberholser, Proc. U.S. Nat. Mus., Vol. XXVIII., p. 900, 1905.

Tatara gouldi Oberholser, *ib.*

Acrocephalus australis australis Mathews, Nov. Zool., Vol. XVIII., p. 342, Jan. 31, 1912.

Acrocephalus australis mellori Mathews, *ib.*: Mannam, South Australia; *id.*, Austral Av. Rec., Vol. I., p. 59, 1912.

Acrocephalus australis gouldi Mathews, *ib.*

Acrocephalus australis carteræ Mathews, *ib.*: p. 343, Derby, North-west Australia; *id.*, South Austr. Ornith., Vol. III., p. 174, 1918.

Acrocephalus australis melvillensis Mathews, Austral Avian Record, Vol. I., pt. 3, p. 77, June 28, 1912: Melville Island, Northern Territory.

Acrocephalus australis inexpectatus Mathews, *ib.*, pt. 4, p. 92, Sept. 18, 1912: New South Wales.

Not *A. inexpectatus* Berezowski and Bianchi (Ann. Mus. Zool. St. Petersburg, Vol V., p. 210) 1900.

Conopoderas australis australis Mathews, List Birds Austr., p. 209, 1913; Belcher, Birds Geelong, p. 265, 1914.

Conopoderas australis inexpectatus Mathews, *ib.*

Conopoderas australis gouldi Mathews, *ib.*; Carter, Ibis, 1921, p. 57.

Conopoderas australis carteræ Mathews, *ib.*

Conopoderas australis melvillensis Mathews, *ib.*, *id.*, Ibis, 1914, p. 124.; S. A. White, Emu, Vol. XVIII., p. 22, 1918 (S.A.)

DISTRIBUTION. Australia generally and Tasmania.

Adult male. General colour of the upper-surface smoke-brown, including the top of the head, back and wings, becoming paler and inclining to cinnamon-brown on the upper tail-coverts and tail; greater upper wing-coverts, bastard-wing, and primary-coverts darker and more blackish brown than the back; flight-quills also blackish brown with pale inner margins; lores and a line above the eye pale buff; ear-coverts and sides of the neck similar to the back; a dusky spot in front of the eye; throat, fore-neck, and middle of abdomen white; breast tinged with buff; sides of body and thighs ochreous buff; under tail-coverts, axillaries, and under wing-coverts pale buff; under-surface of flight-quills pale brown; lower aspect of tail pale cinnamon-brown. Bill with upper mandible brown, distal half of lower bluish-grey, remainder fleshy-grey. Feet and tarsus dark leaden-blue, eyes brown. Total length 155 mm.; culmen 16, wing 74, tail 72, tarsus 28. Figured. Collected at Point Torment, West Kimberley, North-west Australia, on the 12th of April, 1911, and is the type of *Acrocephalus australis carteræ*.

Adult female. Similar to the adult male.

Adult. General colour above earth-brown, including the top of the head, hind-neck, sides of face, sides of neck, back and wings, becoming paler on the rump, upper tail-coverts, and tail; lores and a line over the eye white; a dusky spot in front of the eye; throat and fore-neck milk-white; breast, abdomen, sides of body, under tail-coverts, axillaries, and under wing-coverts pale buff; under-surface of flight-quills pale brown with buffy margins; lower aspect of tail also pale brown with paler margins at the tips of the feathers and white shafts. Bill brown, lower mandible and basal half of tomium of upper flesh white, tinged with leaden-blue near tip, feet pale leaden-blue, tarsus leaden-grey. Eyes light brown. Total length 185 mm.; culmen 16, wing 82, tail 70, tarsus 29. Figured. Collected on

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Melville Island, Northern Territory, on the 9th of January, 1912, and is the type of *Acrocephalus australis melvillensis*. The sexes are alike.

Immature somewhat like the adult.

Juvenile. General colour of the upper-surface russet-brown, darker and inclining to dark hair-brown on the wing where many of the feathers are only partially developed. Throat, breast, and sides of body buff. Middle of abdomen and vent white. Eyes deep brown, bill horn, with yellow base; feet brown. Collected at Lake Matilda, West Australia, on the 4th of November, 1911.

Nest. Situated in the reeds of which two to five are woven with the nest. Composed of grass and thistledown and lined with the former material. Measurements outside 7 inches deep by 4 inches wide. Inside 2 by 2 to 2½ wide (five nests examined).

Eggs. Clutch, three to four. Ground-colour buffish-white, freckled and spotted with reddish and light-brown and lavender. 20 mm. by 14-16.

Breeding-season. September to February.

THIS bird was figured by Lewin but no Latin name was imposed, so that it remained for Gould to add the specific *australis* as hereafter related.

Gould wrote: "This bird does not inhabit Tasmania, but is universally dispersed among the sedgy sides of rivers and lagoons both in South Australia and New South Wales; I also observed it in great abundance on the banks of the rivers to the northward of Liverpool Plains; in all these localities it is strictly migratory, arriving in September and departing again before the commencement of winter. In its general economy it closely resembles its European congeners, but possesses a still louder and more melodious song than any of them, except the *C. turdoides*. It is rather a late breeder, scarcely ever beginning this natural duty before the month of November. The food consists of insects of various kinds." The western race was separated as a distinct species, and of this he recorded: "It is a native of the western portion of the country, where I learn from Gilbert's notes that 'it is to be found in all the dense reed-beds bordering the rivers and lakes round Perth, but it is so shy that it scarcely ever shows itself above the reeds. I have remarked also that it never wanders many yards from the nest. It sings both night and day, and its strain is more beautiful and melodious than that of any other Australian bird with which I am acquainted, being in many parts very like that of the far-famed Nightingale of Europe. The stomach is tolerably muscular, and the food consists of coleopterous and other kinds of insects.'"

McClymont, in "Forgotten Feathers," in the *Emu*, Vol. V., p. 211, 1906, recalled de Vlaming's record of hearing the Nightingale's song and referred to the extract above, observing: "It is in all probability the bird whose song was heard by the explorers." Of this there seems to be little or no doubt, so that this bird probably holds claims to be the first Australian passerine bird to attract the notice of European travellers who were not naturalists,

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and, moreover, is practically the only true Sylvine bird common to both continents, the succeeding species being its nearest competitor, but it has only a restricted range in the south of Europe.

Mr. Thos. P. Austin has sent me the following account from Cobbora, New South Wales: "The present species is not strictly migratory, with plenty of rain during both the early and late autumn, following on top of a wet summer, a few birds remain during the winter, but invariably much more numerous during the warmer months of the year, when their beautiful happy song and mournful whistling notes may be heard the whole day long issuing from clumps of reeds growing on the margins of rivers, lagoons, large dams, etc. When disturbed they fly out over the water, and with rapid flight flash along near the surface, then suddenly dart into another clump of reeds. Their nests are wonderfully constructed, and vary remarkably according to the material at hand. As a rule they are open, deep cup-shaped structures, the rim being slightly narrower than the middle of the bowl, giving it the appearance of having contracted at the top. They are formed of long strips of leaf-like thin reeds, which are firmly bound round three or four upright reeds, usually growing in water, the inside being neatly lined with fine dry grass-stems and flowerdown from the reeds. Others are composed almost entirely of wool from dead sheep, with the addition of a little dry grass and reeds. But the most extraordinary nest I have seen was placed low down in the drooping branch of a willow tree, growing in a dam in front of my house, the greater portion of this nest being composed of white and grey feathers from Ducks and Geese, with the addition of just sufficient dry grass to hold it all together in position. Three eggs generally form a clutch, but sometimes four. I have examined nests containing eggs from the first week in October till the last week in January."

Captain S. A. White writes: "This is the most beautiful songster in Australia and, being always associated with water, makes it more pleasing. They sing far into the moonlit nights, even dark or only starlit nights are broken by a few bars of music at intervals. They come south in the spring and scatter along the watercourses where there is cover in the shape of reeds, flags, etc., and soon build their nests, which are suspended between two or three reeds, and are composed of the leaning reeds or flags split into strips; the nest is not lined, and the eggs three or four in number. As soon as the young are hatched the birds cease to sing and they leave us before the winter."

Mr. Edwin Ashby observes: "During the springtime and to a certain extent throughout the year the Reed-Warblers fill the air with song along the banks of the Murray River. I hardly think that for fullness and richness of note these birds are surpassed by any other bird in any part of the world."

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Some of their notes are quite equal to the full notes of the Nightingale of Europe. Where our small creeks in the Adelaide Hills grow a sufficient clump of tall reeds a pair or two of Reed-Warblers are sure to make it their home. In the centre of the City of Adelaide around the reedy banks of the River Torrens many of them nest annually."

Mr. J. W. Mellor has also written: "The Reed-bird is well known in South Australia and nowhere better than at the reed-beds, where the emptying of the River Torrens encourages a rank growth of reeds and rushes and flags, and here during the late winter months and on well into the summer the beautiful melodious whistle of this little bird is heard in the dense growth of vegetation; but as soon as the swamp waters dry up it leaves, although where the water is permanent I believe a few stay with us all the year round. The Reed-bird is found along the reedy banks of the River Torrens right into the City of Adelaide bounds, in fact any waters inland where reeds and rushes grow the bird frequents during the spring and summer months. Its whistling notes somewhat resemble certain notes of the common Canary, and are of a wonderfully liquid tone. It breeds from August to December and is particularly useful as an insect-destroyer, as its food consists solely of various insects which live in the water herbage, and is especially destructive to the grub that burrows into the reed stems and kills the tops of the reeds that are useful for thatching purposes."

Mr. Sandland writes: "Common along the swampy creeks in Buna district, South Australia, generally nesting during November and December."

Legge has written: "The Reed-Warbler is a welcome harbinger of spring, and is, one might say, the only connecting link between the songsters of the old country and our far-off southern isle; and yet it is a little known bird in Tasmania, being very local in its habitat and confined to those rivers and waters which are lined with the lofty water weed. It arrives in the island towards the latter end of September, and soon makes its presence known by its loud and not unmelodious warblings, issued forth from the dense shelter out of which it is rarely seen, and which are repeated through the night, after the habit of its congener in England, *A. streperus*. This Warbler was first noticed in the midlands, not being enumerated in the earlier lists of Tasmanian birds. It is plentiful in the great reed-beds in the North Esk between Launceston and St. Leonards, but is seldom visible, and its existence unknown to all who are unacquainted with its notes. In the south it is rare."

Berney's notes read: "With the advent of the artesian bore streams and their attendant bulrushes (*Typha*) the Reed-Warblers have invaded the western downs (Richmond district, North Queensland), and are now common where previously they were unknown. They are really beautiful songsters

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—possibly our very best—and from their rich notes and the habit of singing at night might well be called the Nightingale's understudy. A degree or two of frost does not deter them, and their song seemingly sounds better in the crisp, dry air. I have found nests with eggs and others with young in November and December."

Dove has recorded: "The Reed-Warblers were much in evidence (in Tasmania) that same day, flying excitedly from the dense growth of the river-side into the wattle trees, then chasing each other from the trees back into the reeds. I noticed they have a harsh, somewhat guttural call-note, not unlike one occasionally employed by the Crescent Honey-eater when a cat or other enemy is in the vicinity. The beautiful Canary-like song of this water-side dweller was heard unusually early this spring; on the 22nd September one . . . was heard; usually we do not notice them until well on in October and they do not nest here until November. . . They have no objection to the proximity of our species provided there is cover."

From Essenton, Victoria, Dove later notes: "The Reed-Warbler, which makes its home in the thick vegetation surrounding the ponds, is a very plain brown and grey individual, but its sweet notes more than atone for any lack of gay colours in its plumage; in fact, we may well call it the Nightingale of the South. Besides chanting at frequent intervals during the day, it may be heard also on warm evenings long after dark. . . . Found a Reed-Warbler's home perched up in a fork eight feet from the ground in the imported bush *Sparmannia africana*; the nest contained three fresh eggs. Never before or since have I seen the Warbler's home in such an elevated position, all others in the locality being placed only a foot or two above the water among the reed-stems."

Mr. E. J. Christian has written me: "This beautiful little songster is migratory, and I have generally noticed that he returns to Melbourne any time from the middle of September to the middle of October. In 1905 it returned to Melbourne Botanical Gardens (where they nest yearly on the lakes) on October 17th. In 1906 they arrived at the same place on September 10th, so were nearly a month earlier. Their sweet song always announces their arrival, and they are one of the few Australian birds which sing night and day. They love the reeds and always nest in them. In Tasmania on the River Tamar I have seen plenty of them; they are fairly tame and I have gone close up to them when nesting and singing. Eats many insects which breed in the water."

Mr. Frank Littler's experience seems to differ: "Is a migratory species, only remaining in Tasmania and the mainland part of the year, where it nests and brings up its young. Its cheerful note is more often heard than the bird

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is seen as it keeps to reeds and rushes. It sings both night and day, but is always shy. Feeds on insects and mollusca gathered from the reeds and out of the mud."

Mr. F. E. Howe wrote: "At Tailem Bend the opposite side of the River Murray had a low bank fringed with bulrushes, and there must have been thousands of these silver-throated songsters pouring out their evensong."

Regarding the occurrence and habits of this species in West Australia Mr. Tom Carter has given me the following account: "The occurrence of the Pale Long-billed Reed-Wren was only twice recorded by me: the first occasion was in June 1900, the record wet year, when I saw and heard several in the dense rushes in a pool at Winning Telegraph Office, about 80 miles south-east of Point Cloates. I failed to procure any specimens, as a teamster drove a mob of horses right into the pool just as I had got my gun out of the buggy, and I was unable to remain at that camp any time. On March 25, 1902, an immature male bird was shot while it was singing in dense rushes and grass, on the edge of a fresh-water pool on my inland station, about 60 miles south-east of Point Cloates. The dark form is common in the rushes of the large swamps through the south-west. I have heard them in suburbs of Perth and lakes in the vicinity of Monger's Lake. Also at the Vasse (Busselton), Lake Muir, Albany, etc. These birds were very numerous in large fresh-water lakes near Lake Muir. They keep constantly over the water in the thick growth of rushes, and were never seen on land. Their loud cheerful songs are heard as long as the sun is shining, but if it clouds over they remain silent. They keep low down in the rushes and are seldom seen. Their alarm note is a sharp 'Chat-chat.'"

Whitlock wrote from the Stirling Ranges: "When camped near Lake Mathilda my attention was attracted by the harsh and guttural notes of a local Reed-Warbler. I had hitherto regarded the notes of this bird as amongst the sweetest uttered by our native songsters, but these Lake Mathilda birds could hardly be called songsters when their efforts were contrasted with those of Swan River or other Reed-Warblers heard further north. Lake Mathilda, however, was exceptionally high, and things were not improved by a further fall of 5 inches of rain in 48 hours whilst I was camped there. Though it was the first week in November, building operations were hardly in full swing. . . . Possibly the harsh notes had been learned from the swarms of frogs inhabiting the lake; but the matter is worthy of the attention of any other ornithologist who may visit the locality."

Campbell and Barnard have recorded: "A few birds were observed in the long grass and reeds of Kirrama Creek, close to Kirrama homestead on the tableland. Time, about end of October. Dr. Ramsay noted these

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Warblers in tall reeds while he was Wild Goose shooting. Further south, near Mackay, during July, Reed-Warblers were heard in the sugar cane and among *lantana* (introduced) scrub."

The variations in this species are not well-known when the minute differences utilised by Palæarctic workers in this group are considered. The climatic conditions in Australia tend to produce well-marked forms in certain cases, and this group is definitely variable. Many years ago Gould distinguished the Western Australian form as a distinct species on account of its longer bill, and this has been maintained until very recent years. As the earliest reference to the eastern form was cited the name used by Gould in his folio *Birds of Australia*, where he called it *Acrocephalus australis*, the western form having been previously named *Calamoherpe longirostris*. These two names were used for distinct species until 1901 when Dubois, recognising the invalidity of the latter name, renamed it *Acrocephalus gouldi*.

The consideration of the series for my "Reference List" in 1912 showed these "two" species to be subspecific value only and I recognised two others as follows:

Acrocephalus australis australis Gould.

South Queensland, New South Wales.

Acrocephalus australis mellori Mathews.

"Differs from *A. a. australis* in its larger size (wing 78 mm.) and paler rump. Mannam, S.A."

Victoria and South Australia.

Acrocephalus australis gouldi Dubois.

South-west Australia.

Acrocephalus australis carteræ Mathews.

"Differs from *A. a. gouldi* in being much lighter above, especially on the head, while the back is brownish, where in that form it is olive-green. Derby, N.W.A."

North-west Australia.

When I received Melville Island birds I named:

Acrocephalus australis melvillensis Mathews.

"Differs from *A. a. carteræ* in its much thicker, heavier bill, and larger size generally."

A little later Witmer Stone wrote that the Gouldian types in Philadelphia were labelled South Australia, and therefore that should be accepted as the type locality. I consequently named the New South Wales bird:

Acrocephalus australis inexpectatus

and *A. a. mellori* became a synonym of the typical subspecies. It is rather pleasing to record a new reconsideration of the subspecific names and the

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revival of *A. a. mellori* as valid. Ten years before Gould published his plate of *Acrocephalus australis* a new edition of Lewin's famous book had been issued under the title "Natural History of Birds of New South Wales, by Lewin. New edition incorporating the latest discoveries of John Gould, N. A. Vigors, J. Horsfield and W. Swainson." It was edited by Eyton and the preface was followed by an "Index of Synonyms," and for Plate 18 figuring the Reed-Warbler from Parramatta, New South Wales, was cited: "*Calamoherpe australis* Gould." This name therefore dates from this place and time and absolutely refers to the New South Wales bird. Consequently we must now admit:

Conopoderas australis australis (Gould).

New South Wales, South Queensland.

Conopoderas australis mellori (Mathews).

South Australia, Victoria (?) Tasmania.

Conopoderas australis gouldi (Dubois).

South-west Australia.

Conopoderas australis carteræ (Mathews)

North-west Australia.

Conopoderas australis melvillensis (Mathews).

Melville Island, Northern Territory.

GENUS—CISTICOLA.

CISTICOLA Kaup, Skizz. Entwick. Gesch. Nat.

Syst., p. 119 (pref. Apl.) 1829. Type (by

tautonymy) *Sylvia cisticola* Temminck.

Cysticola Lesson, Traite d'Orn. livr. 6^e, p. 415,

March 1, 1831. Type (by tautonymy) ... *Sylvia cisticola* Temminck.

VERY small Warblers, peculiarly dimorphic seasonally, with small bills, short rounded wings, long fan-shaped tails, long legs and small feet.

The bill is shorter than the head, generally apically compressed, with a little basal expansion, the culmen-ridge rounded, the tip arched but not notched; nasal-groove small, about one-fourth the length of the bill, the nostrils linear slit strongly operculate; there is one notable rictal bristle; the lower mandible is a little flattened, the interramal space about half the length and flattened, the gonys nearly straight and slender.

The wing is short and rounded, the first primary short about half the length of the second, which is equal to the eighth; the third, fourth, fifth and sixth are equal and longest, the rest little less and the secondaries are nearly as long equalling the tenth.

The tail is long and fan-shaped, composed of twelve feathers.

The legs are long and thin, the tarsus booted anteriorly and bilaminate posteriorly; the toes long and thin, the mid-toe longest, the outer longer than the inner, the claws sharp; the hind-toe stouter and claw longer.

The genus is probably the most perplexing to deal with, as, while male and female differ in size, they differ in form seasonally, the tail and wings being longer in winter than in summer, and, of course, in the tropics where the seasons vary the differences become slighter and agree with the wet and dry seasons which are erratic in different localities.

CISTICOLA EXILIS.

GRASS-WARBLER.

(PLATE 443.)

MALURUS EXILIS Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 223, Feb. 17, 1827: New South Wales.

Malurus exilis Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 223, 1827.

Cysticola exilis* Gould, Birds Austr., pt. xxiv. (Vol. III., pl. 42), Sept. 1st, 1846; *id.*, Proc. Zool. Soc. (Lond.), 1847, p. 1; *id.*, Handb. Birds Austr., Vol. I., p. 350, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus. Vol. VII., p. 269, 1883; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 24, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 227, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 258, 1904; Berney, Emu, Vol. V., p. 73, 1905, (N.Q.); Hartert, Nov. Zool., Vol. XII., p. 227, 1905; Cornwall, Emu, Vol. VII., p. 175, 1908; Mathews, Handl. Birds Austral., p. 73, 1908; *id.*, Emu, Vol. IX., p. 11, 1909 (N.W.A.); Broadbent, *ib.*, Vol. X., p. 237, 1910 (N.Q.); Hill, *ib.*, p. 278, 1911 (N.W.A.); Barnard, *ib.*, Vol. XI., p. 26, 1911 (N.Q.); Fletcher, *ib.*, Vol. XII., p. 171, 1913 (Tas.); Agnew, *ib.*, Vol. XIII., p. 96, 1913 (Q.); H. L. White, *ib.*, Vol. XVI., p. 224, 1917 (N.T.); Macgillivray, *ib.*, Vol. XVII., p. 201, 1918 (N.Q.); Thomson, *ib.*, Vol. XVIII., p. 199, 1919 (Vic.); Campbell, *ib.*, Vol. XX., p. 61, 1920 (N.Q.).

Cysticola ruficeps Gould, Synops. Birds Austr., pt. iv., App., p. 4, April 1838: New South Wales; [Not *Malurus ruficeps* Cretzschmar in Ruppell's Atlas, p. 54, pl. 36A, 1826, which is a *Cisticola*.] *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 146, 1838 (Dec.); *id.*, Birds Austr., pt. xxvi. (Vol. III., pl. 45), March 1st, 1847; *id.*, Handb. Birds Austr., Vol. I., p. 353, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 163, 1913.

Cysticola lineocapilla Gould, Proc. Zool. Soc. (Lond.), 1847, March 29th, p. 1, Port Essington, Northern Territory; *id.*, Birds Austr., pt. xxvii. (Vol. III., pl. 43), June 1st, 1847; *id.*, Handb. Birds Austr., Vol. I., p. 351, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; *id.*, Tab. List Austr. Birds, p. 9, 1888; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 163, 1913.

Cysticola isura Gould, Birds Austr., pt. xxvi., Vol. III., pl. 44, March 1st, 1847; New South Wales; *id.*, Proc. Zool. Soc. (Lond.), 1847, p. 32, April: *id.*, Handb. Birds

* Also spelt *Cisticola*.



H. Grönvold, del.

Witherby & Co

CISTICOLA EXILIS
(GRASS-WARBLER).

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Austr., Vol. I., p. 352, 1865; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 163, 1913.

Cisticola exilis exilis Mathews, Nov. Zool., Vol. XVIII., p. 343, Jan. 31, 1912; *id.*, List Birds Austr., p. 209, 1913; Belcher, Birds Geelong, p. 266, 1914.

Cisticola exilis mixta Mathews, Nov. Zool., Vol. XVIII., p. 343, Jan. 31, 1912: (Bartle Frere), Queensland; *id.*, List Birds Austr., p. 210, Jan. 31, 1912; *id.*, South Austr. Ornith., Vol. 2, p. 57, 1915.

Cisticola exilis lineocapilla Mathews, Nov. Zool., Vol. XVIII., p. 343, 1912; *id.*, List Birds Austr., p. 210, 1913; *id.*, Ibis, 1914, p. 124; Campbell and Barnard, Emu, Vol. XVII., p. 26, 1917; Campbell, *ib.*, Vol. XVIII., p. 183, 1919.

Cisticola exilis alexandrae Mathews, Nov. Zool., Vol. XVIII., p. 343, Jan. 31, 1912: Alexandra, Northern Territory; *id.*, List Birds Austr., p. 210, 1913.

Cisticola exilis melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 43, April 2, 1912: Melville Island, Northern Territory.

Cisticola exilis parryi Mathews, *ib.*, pt. 3, p. 77, June 28, 1912: Parry's Creek, North-west Australia; *id.*, List Birds Austr., p. 210, 1913; *id.*, South Austr. Ornith., Vol. III., p. 174, 1918.

Cisticola exilis tormenti Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 77, June 28, 1912: Point Torment, North-west Australia.

Cisticola exilis normani Mathews, *ib.*, Vol. II., pt. 5, p. 98, Sept. 24, 1914: Norman River, N. Queensland.

DISTRIBUTION. Australia generally, but not South-west. Tasmania?

Adult male. Crown of head rufous-chestnut; sides of face, sides of neck, entire back, upper tail-coverts, wings and tail ochreous-brown with blackish centres to the feathers on the upper back, wings, and tail; the inner webs of the flight-quills dark hair-brown with pale margins; throat, middle of breast and middle of abdomen whitish; sides of body, thighs, under tail-coverts, under wing-coverts, and inner edges of quills below ochreous-buff, remainder of the quill-lining pale brown; lower aspect of tail similar to its upper-surface. Bill brown, lower mandible white; feet and legs very pale fleshy-brown; eyes brown. Total length 99 mm.; culmen 9, wing 45, tail 31, tarsus 20. Figured. Collected on Melville Island, Northern Territory, on the 6th of December, 1911. (Middle left fig.).

Adult. General colour of the upper-surface ochreous-brown with dark brown or blackish centres to the feathers on the head, back, wings, and tail; inner webs of flight-quills rather paler on the margins; central tail-feathers show almost obsolete dark cross-bars; throat, middle of breast and middle of abdomen silky white; sides of face, sides of neck, sides of body, thighs and under tail-coverts ochreous-buff like the under wing-coverts and inner edges of the quills below; remainder of the quill-lining pale brown; lower aspect of tail greyish-brown with a blackish subterminal spot and tipped with ochreous-grey. Bill brown, lower mandible white, feet and legs very pale brown; eyes brown. Total length 123 mm.; culmen 9, wing 46, tail 50, tarsus 21. Figured. Collected on Melville Island, Northern Territory, on the 7th of June, 1912. (Bottom fig. breeding female?).

Adult female. Crown of head, hind-neck, rump and upper tail-coverts, sides of face, sides of neck, sides of body, and thighs sandy-buff with broad dark shaft-lines to the feathers on the crown; back and wings pale drab-grey with dark brown or blackish

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centres to the feathers ; inner margins of flight-quills whitish ; central tail-feathers similar to the back, the outer ones blackish margined with buffy-white ; throat, breast, and abdomen silky white like the under tail-coverts and under wing-coverts ; under-surface of flight-quills pale greyish-brown with buffy-white edgings ; lower aspect of tail greyish-brown with a dark subterminal spot and greyish-white tips to the feathers. Upper mandible brown, lower fleshy-grey ; feet and legs yellowish-white ; legs pale brown. Total length 103 mm. ; culmen 9, wing 43, tail 35, tarsus 20. Figured. Collected Point Torment, North-west Australia, on the 4th of April, 1911, and is the type of *Cisticola exilis tormenti*. (Top fig.).

Adult male. Crown of head, sides of face, hind-neck, rump, and upper-coverts sandy-buff ; back, wings, and tail dark brown, or blackish with drab-grey or ochreous margins to the feathers ; inner edges of flight-quills buffy-white ; tail-feathers darker than the primary and outer secondary-quills ; throat and entire under-surface sandy-buff, including the under wing-coverts, somewhat darker on the thighs and paler on the under tail-coverts, with more or less white on the breast and abdomen ; under-surface of quills dark brown with buff edgings ; lower aspect of tail blackish with pale tips to the feathers. Bill dark brown, lower mandible light horn, feet flesh ; eyes brown. Total length 100 mm. ; culmen 9, wing 48, tail 30, tarsus 20. Figured. Collected at Cairns, North Queensland, on the 14th of January, 1885.

Young. "Both sexes resemble the winter plumage of the adult female, but are duller in colour, the feathers of the hind-neck and rump alone showing a distinct wash of golden-buff, those on the under-surface being dull white with a faint tinge of yellowish-buff on the neck and golden-buff on the sides of the body" (North).

Nest. Dome-shaped, with the opening near the top, placed near the ground. Composed of thistledown and grass, and with the leaves of the herbage in which it is built woven into it, in some places having the appearance of being sewn. Lined with thistledown. Outside measurements about three-and-a-half inches. Opening about one inch wider.

Eggs. Clutch, three to four. Glossy. Ground-colour bluish-green, spotted and blotched with purple or purplish-brown, more so on the larger end where sometimes a zone is formed. 18 mm. by 12.

Breeding-season. October to February.

UNDER the genus name *Cisticola* Gould observed : "These little birds are most perplexing, and the due elucidation of the Australian members of this form can only be effected by resident ornithologists ; to this subject I would therefore direct the special attention of Mr. Ramsay, of New South Wales, Mr. White, of South Australia, or any other person favourably located for investigating them. A knowledge of the changes of plumage, if any, of a single species would be a key to the whole. By closely watching the birds while breeding, obtaining the mated pairs, ascertaining the sex of each by dissection, and by observing the young from youth to maturity, the matter might easily be determined." He then continued under the heading *Cisticola exilis* : "This species appears to have been first noticed by Latham in the seventh volume of his 'General History of Birds' under the title of Exile Warbler, and to have been subsequently placed in the genus *Cisticola* (error

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by Gould for *Malurus*) by Vigors and Horsfield while engaged in naming the collection of Australian birds in the possession of the Linnean Society. Its natural habitat is New South Wales and South Australia, in both of which colonies I observed it to be abundantly dispersed among the thick beds of grasses which clothe the valleys and open plains. I have never received it from either of the other colonies, all of which, however, are inhabited by nearly allied species. It is very retiring in its habits, generally creeping about among the grasses, and will almost admit of being trodden upon before it will rise and take wing; during the months of spring the male becomes somewhat bolder, and early in the morning will frequently perch on the highest of the grasses and pour forth a pretty but feeble song, resembling that of the *Maluri*. As some confusion existed respecting the sexes of the various species of this genus, I was particular in dissecting all the individuals I shot, and I can therefore state with certainty that the plumage of both sexes of this species is perfectly similar, and that the only outward difference between them consists in the female being somewhat smaller than her mate." Gould also described *Cisticola lineocapillæ*, writing: "Is a much smaller and more delicately formed species than the *C. exilis*, and may, moreover, be distinguished from that and every other member of the genus with which I am acquainted by the lineated form of the markings of the head. It is a native of the north coast of Australia, and all the specimens I have seen were from the neighbourhood of Port Essington. Gilbert states that it "is very rarely seen, in consequence of its generally inhabiting the long grass of the swamps, where it creeps about more like a mouse than a bird, and if once alarmed it is no easy task to get a sight of it again; its note is a short and feeble but very pleasing song. The stomach is muscular, and the food consists of insects of various kinds." Previously he had described as new *C. ruficeps*, of which he wrote: "I can only say, therefore, that I possess three examples, one from the Liverpool Plains, another from the district of Port Phillip, and a third from the north coast, which proves that it enjoys a widely extended range of habitat. The uniform rufous colouring of the head and occiput at once distinguishes it from all the other Australian members of the genus. In its habits, manners, and general economy it doubtless closely assimilates to its congeners, and like them inhabits the open grassy glades between the forests, the grassy crowns of thinly-timbered hills and all similar situations." He then added another new species, apologising: "I am uncertain whether this bird may not prove to be a female, or an example in some peculiar state of plumage of the *C. ruficeps*. Without a further knowledge of the subject I can only view it as distinct, and I have therefore assigned to it the specific appellation of *isura*, as indicative of the shorter and more truncated form of its tail, the

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principal character by which it may be distinguished. Like the other species of the group, it appears to enjoy an extensive range over the grassy districts of the country, the specimens in my possession having been killed on the Liverpool Plains and at Port Phillip." A species, *C. campestris*, later renamed *C. magna*, by Gould, has proved to be not an Australian bird.

Mr. Tom Tregellas has written me: "The Grass-Warbler is one of the most elusive of our scrub-loving birds, and having much the same habits and living in the same locality as the Emu-Wren and Striated Field-Wren, is found in close conjunction with them. Shy and retiring, small and sombre-coloured it is extremely hard to observe, hiding in the smallest corners available. The bird has a peculiar low plaintive call and in the fastnesses of the dense thickets this has a weird effect. It is a delightful little bird to study, and when nesting is usually in company with the Reed-Warbler in the swamps, making its nest in company with them in clumps of lignum, reeds or swamp grass."

Mr. F. E. Howe's account states: "This little visitor appears to arrive in the district late in the season, and about November and December its peculiar double note, preceded by a hissing sound, is heard in the crops. After the crops are cut they nest in the long grass, and on the 28th Dec., 1907, we flushed a bird that had just started to build. There were only a few webs holding some grass leaves, and on 12th January, 1908, four pretty eggs were in the finished nest."

Mr. Edwin Ashby writes: "I have seen these in clumps of bulrushes near Mannum, South Australia, and have seen a nest that was built near the river in standing corn. Except along the banks of the Murray and on Lake Alexandrina near its mouth, I have neither seen nor heard of this bird in this State."

Captain S. A. White's notes read: "This wonderful little bird was very plentiful at the Reedbeds when much of the country was under swamp, but now that the country has been partly reclaimed these birds are seldom seen or heard. They are to be found in numbers still along the reclaimed swamps of the River Murray. They utter a sweet little note like 'tweet-tweet' and at times 'ting-ting'; their nests are very difficult to locate and are made of grass stems beautifully interwoven in a dome-shape with the entrance on one side and very often completely enveloped in two broad dock leaves which are neatly sewn at the edges, a most remarkable piece of work."

Berney has written from the Richmond district, North Queensland: "The Grass-Warbler is a constant resident with us, but is much more often heard than seen; it keeps to the bulrush beds, where one may sight its small form as it clings to the top of a rush for a moment, and then drops out of sight. This bird has a single sweet liquid note, with which is interspersed a sharp

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buzzing sound. I have found its rather peculiar nests, of which an excellent illustration is given in the Australian Museum's No. 1 *Special Catalogue*, but not until they had fulfilled the purpose for which they were constructed. I notice by the publication just quoted that Mr. A. J. North considers this a coastal bird."

Cornwall has also recorded: "On the northern side of the Pioneer River (near Mackay, North Queensland), and stretching towards Habana Bay, there are immense tracts of land which were at one time under sugar-cane, but now produce nothing but a coarse herbage and a rank growth of that curse of the northern coast lands, the *Lantana*. Here the little Grass-Warbler (*Cisticola exilis*) has its home and finds a habitat eminently suited to its economy. The time of nesting varies with the season. In a dry time, when the grass is all burnt off, they have sometimes to wait until February before there is sufficient growth of grass to afford them shelter, but last season was a bountiful one, the grass was tall and green the whole summer through, and the Grass-Warblers were found nesting in October. My last note records a nest of young ones early in February."

Broadbent also wrote: "30th August, Herbert River. This pretty little bird is rare on Bellenden Plains in long grass, also on the grass flats on the Herbert as far as Craig's, Herbert Gorge, and on the head of the Murray, near the hills."

Barnard observed: "Plentiful at Cape York in long grass in open forest," while later Campbell and Barnard wrote: "This puzzling little species was observed on the flats (Bellenden Ker district), and a specimen procured appeared referable to Gould's *lineocapilla*. (On a former visit, 1914, this species was common in grassy situations, Bellenden Plains, where it was breeding. A. J. C.)"

Miss Fletcher has written: "Since September 1911, observations have pointed to the existence of *Cisticola exilis* in the Springfield district, Tasmania." Some notes were given of the finding of nests and eggs apparently referable to this species, but no birds were secured for absolute identification at that time and I have failed to trace any further information on this subject.

Donald Thomson has given a nice account of this species in Victoria, and I extract the following: "Even before one actually reaches the home of this beautiful little bird, its sharp, wheezing, but not piercing call is plainly audible, wafted to the ears by soft spring breezes. At first it appears to come from the clear azure above, then from the right or left, and then when the bird at last is seen it will probably be in quite a different direction from that which it at first appeared to come. Thus it would seem that this bird has the wonderful natural gift of ventriloquism. . . . A bird flits and settles

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near at hand. Seeing that all is safe, the bird has a high flight in the air, at the same time uttering the loud wheezing cry, and finally alighting on a clump of rushes not far away from its starting place. The aerial journeys are taken very often during the hot spring days and in the quiet stillness after sunset. These birds seldom enter the clump of vegetation in which their nest is hidden by direct flight, even if certain of security from observation. They alight some little distance away and then 'creep' from stalk to stalk, always low down, until the nest is eventually reached. . . . Most of the nest-building appears to be done at sunrise and just about sunset—that is, in the cooler and quieter hours of the day."

Ramsay, years ago, recorded from the North-west: "*Cisticola* sp. (?). Mr. Cairn has sent only one specimen, probably because the species was plentiful, but it appears to me to be distinct from *C. ruficeps*, or else a remarkably well-bleached specimen, the under-surface being silky and almost *white*, the head alone slightly tinged with buff, the tail light brown with a faintly defined subterminal spot of dark brown, margined on the tips of the feathers with pale buff."

Campbell's conclusion upon receipt of specimens from the King River, Northern Territory, appeared as follows: "One male, one female. Strongly striped specimens, the male without the usual rufous head. This little species is puzzling in its distribution. Between the strongly-marked extreme northern and southern races there appears to be a pale form, extending from the lower Gulf of Carpentaria country to North-west Australia, agreeing with either one of Mathews' three subspecies—*alexandræ*, *normani*, and *parryi*."

Still later reporting upon a collection from the islands in Torres Straits he wrote: "The Grass-Warbler enjoys a wide range, and is exceedingly variable both in summer and winter plumage. The above quartet (two males and two females) generally may be regarded as typical. The two males have cinnamon-coloured crowns, which part in the females is dark striped. Dr. Sharpe regards the four species described and figured by Gould as referable to one species—*exilis*. Grass-Warblers were numerous on Moa, and many nests were observed."

Söderberg, interested in the moult of birds, has written: "*Moulting*. Concerning the moulting of this species *Cat. of Birds* says: 'All birds collected by Mr. Oates in month of April (from Pegu, Malay Archipelago) are in full moulting, from which it appears that before breeding in May they change at least the greater part of their plumage. . . . Leaving Burma and examining a series from Australia (we find the full plumaged males with rufous heads, while the females have striped heads); but one skin, shot by Mr. Goodwin in March on the Richmond River, is moulting from the black-headed striped

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stage into the rufous-headed dress, and there can be little doubt that the winter plumage of both sexes is blackish with streaked backs and heads.' My three specimens are in moulting, No. 1 is dropping strongly on back and under parts; No. 2 has the body ready but is moulting in the tail; No. 3 seems to be full plumaged. All have the winter plumage. Apparently their breeding-season is, as is usual in Australia, during the summer, and the moulting for the winter-dress in April and May. Probably a later moulting in Oct. and Nov. (or even later?) takes place."

Macgillivray has written from North Queensland: "Common on the grassy flats. One noted carrying building material on the 19th January. The nest was fixed in the leaves of a small plant amongst the grass. On the 23rd January, when making our way homeward across a long grassy flat in drenching rain, we flushed another from her nest containing four eggs; this nest was almost round in shape, 2 inches in diameter, the base formed of fine grassy fibres and cobwebs, the sides and top a canopy of leaves sewn together with fine fibres and cobwebs. They get more numerous on the flats as the wet season advances. Common on the Archer in June. They are usually absent from the north in the winter."

This species was first recorded by Vigors and Horsfield, and when Gould received specimens varying in size and coloration he described three as distinct species, and certainly he would appear justified were the variation unknown. This made four species, but soon it was discovered that two were simply seasonal variations, so that three distinct species were accepted until the *Catalogue of the Birds in the British Museum* was written when Sharpe determined that all were referable to the same species and, ignoring subspecies, allowed *Cisticola exilis* to range over the whole of Australia, New Guinea, the Moluccas, Burmah, the Philippines and China, a remarkable range for a sedentary almost flightless bird.

The whole group of *Cisticola* has puzzled systematic ornithologists on account of the seasonal variation and, as above noted, this species varies according to climatic conditions, so that within a few miles specimens may be secured showing different seasonal changes at the same time. Further, while the seasonal changes are very pronounced in the more temperate regions they are little developed in the tropical zones where they vary less noticeably. However locally the variations are limited, that is, constancy is seen when series are compared, the different stages of plumage being carefully separated and such contrasted.

Owing to the great variation very long series are necessary to determine the subspecies, but when these are available such is comparatively easy.

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In my "Reference List" of 1912 I allowed four, thus :

Cisticola exilis exilis (Vigors and Horsfield).

New South Wales, Victoria, Tasmania and
South Australia.

Cisticola exilis mixta Mathews.

"Differs from *C. e. exilis* in its smaller size (wing 41 mm.) and lighter coloration, especially underneath. Bartle Frere, N.Q."

North Queensland.

Cisticola exilis lineocapilla Gould.

Northern Territory, North-west Australia.

Cisticola exilis alexandrae Mathews.

"A pallid form, scarcely comparable, the brown of the typical form being replaced by creamy-buff and the dark edgings obsolete, the collar being only indicated by a pale rufous shade, the under-surface white."

Interior of Northern Territory.

I later added :

Cisticola exilis melvillensis Mathews.

"Differs from *C. e. lineocapilla* in its darker head and back."

Melville Island, Northern Territory.

Cisticola exilis parryi Mathews.

"Differs from *C. e. lineocapilla* in having a much lighter coloured head and shorter bill. Parry's Creek, N.W.A."

North-west Australia.

Cisticola exilis tormenti Mathews.

"Differs from *C. e. lineocapilla* in its altogether paler coloration ; paler even than *C. e. mixta*. Point Torment, N.W.A."

Southern North-west Australia.

In my 1913 "List" with an endeavour to reduce the number of subspecies I questionably referred the Melville Island race to the typical *C. e. lineocapilla*, and associated the two north-western forms, thus admitting five subspecies only.

I, however, later discovered my error and added :

Cisticola exilis normani Mathews.

"Differs from *C. e. lineocapilla* in being much paler above. Norman River, Queensland."

Range, Gulf of Carpentaria in Queensland to
the McArthur River in the Northern
Territory.

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A reconsideration in connection with the extra-limital specimens referred to this species necessitates the recognition of all the named Australian races and the addition of still more :

Cisticola exilis exilis (Vigors and Horsfield).

South Queensland, New South Wales,
Northern Victoria.

Cisticola exilis mixta Mathews.

North Queensland, Bartle Frere district.

Cisticola exilis diminuta subsp. nov.

Cape York, N.Q., North Queensland.

A very small, pale race, showing little or no seasonal plumage changes, and paler than the preceding, the back striping less pronounced, and under-surface paler still.

Cisticola exilis normani Mathews.

Coastal Eastern Northern Territory and
Queensland, as above.

Cisticola exilis lineocapilla Gould.

Coastal Western Northern Territory.

Cisticola exilis alexandræ Mathews.

Interior Northern Territory.

Cisticola exilis melvillensis Mathews.

Melville Island, Northern Territory.

Cisticola exilis parryi Mathews.

Northern North-west Australia.

Cisticola exilis tormenti Mathews.

Southern North-west Australia.

Cisticola exilis exaggerata subsp. nov.

Southern Victoria, Tasmania (?), South
Australia.

Larger and darker than the typical form whatever state of plumage be compared ; probably there is more than one subspecies here confused.

As to the extra-limital forms studied whenever a series is at hand they are found to be constant and easily distinguished, and recent workers have accepted such when they have examined the material ; from many localities single specimens are only seen, and of course the subspecies cannot be determined, though in some cases such are strikingly different. Many have been named by the last generation of ornithologists, and consequently many names are ready-made for some of the recognisable races. In winter plumage the male has a striped head like the female.

GENUS—POODYTES.

POODYTES Cabanis, Mus. Hein, Vol. I., p. 42
 (after Oct. 23) 1851. Type (by monotypy) *Sphenœacus gramineus* Gould.

THIS form has been confused with *Megalurus*, to which the succeeding genus is more nearly related. Compared with *Dulciornis* these are smaller birds with weaker bills, more pointed wings, weaker legs and smaller feet.

The bill is short, but nearly as long as the short head, laterally compressed and with very little basal expansion, the nasal apertures linear, the nasal groove prominent and the frontal feathers a little encroaching; the lower mandible rather shallow, the interramal space, which is feathered, less than half the length of the mandible; the rictal bristles obsolete, scarcely appreciable.

The wing is rounded, the third, fourth, fifth and sixth primaries subequal and longest, the second a little shorter and equal to the seventh, the secondaries long, reaching to the ninth primary, the first primary small, less than half the length of the second.

The tail is long and wedge-shaped, the feathers narrow and the outer about half the length of the middle one, the tail-coverts short.

The legs are short and not very stout; the tarsus shows clearly four scutes in front and is bilaminate behind; the toes are slender, the middle toe and claw a little longer than the inner toe and claw, which exceeds the outer toe and claw; the hind-toe stouter and the hind-claw longer, the hind-toe and claw being longer than the middle toe and claw.



H. Grönvold, del.

Witherby & Co

POODYTES GRAMINEUS
(TASMANIAN GRASS-BIRD).

POODYTES GRAMINEUS.

GRASS BIRD.

(PLATE 444.)

SPHENCÆACUS GRAMINEUS Gould, Proc. Zool. Soc. (Lond.), 1845, p. 19, April : Tasmania.

Sphencæacus gramineus Gould, Proc. Zool. Soc. (Lond.), 1845, p. 19 ; *id.*, Birds Austr., pt. XIX. (Vol. III., pl. 36), June 1st, 1845 ; *id.*, Handb. Birds Austr., Vol. I., p. 400, 1865 ; Diggles, Ornith. Austr., pt. XIV., 1867 ; Ramsay Proc., Linn. Soc. N.S.W., Vol. II., p. 186, 1878 ; *id.*, Tab. List Austr. Birds, p. 10, 1888 ; Witmer Stone, Austral Av. Rec., Vol. I., pts. 6-7, p. 163, 1913.

Megalurus gramineus Gray, Genera Birds, Vol. I., p. 169, 1848 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 125, 1883 ; Hall, Key Birds Austr., p. 24, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 224, 1901 ; A. G. Campbell, Emu, Vol. II., p. 100, 1902 (Vic.) ; Hill, *ib.*, p. 164, 1903 (Vic.) ; A. G. Campbell, *ib.*, p. 207 (King Islands) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 256, 1904 ; A. G. Campbell, Emu, Vol. V., p. 141, 1906 (Kang. Island) ; Batey, *ib.*, Vol. VII., p. 6, 1907 (Vic.) ; Dove, *ib.*, p. 158, 1908 (Tas.) ; Mathews, Handl. Birds Austral., p. 74, 1908 ; Dove, Emu, Vol. VIII., p. 70, 1908 (Vic.) ; Ogilvie Grant, Ibis, 1909, p. 680 (W.A.) ; Macgillivray, Emu, Vol. XIII., p. 171, 1914 (N.Q.) ; S. A. White, *ib.*, Vol. XIV., p. 141, 1915 (Vic.) ; Lawrence and Littlejohns, *ib.*, p. 220, pl. XXIV., 1915 (Vic.).

Poodytes gramineus Cabanis, Mus. Hein., Vol. I., p. 42, 1851.

Megalurus striatus Milligan, Emu, Vol. II., pt. 4, p. 201, April 1st, 1903 : Lake Yanchep, West Australia.

[Not *Megalurus ? striatus* Jerdon, Madras Journ. Lit. Science, No. 30, p. 169, April, 1844.]

Hall, Key Birds Austr., 2nd ed., p. 111, 1906 ; Mathews, Handl. Birds Austral., p. 74, 1908 ; Whitlock, Emu, Vol. XI., p. 244, 1912 (S.W.A.) ; H. L. White, *ib.*, p. 249 ; *id.*, *ib.*, Vol. XV., p. 62, 1915.

Megalurus gramineus gramineus Mathews, Nov. Zool., Vol. XVIII., p. 344, Jan. 31, 1912.

Megalurus gramineus goulburni Mathews, *ib.* : Goulburn, New South Wales.

Megalurus gramineus wilsoni Mathews, *ib.* : (Westernport) Victoria.

Megalurus gramineus dubius Mathews, *ib.* : Mannam, South Australia.

Megalurus gramineus striatus Mathews, *ib.*

Megalurus gramineus thomasi Mathews, *ib.* : Lake Muir, West Australia.

Megalurus gramineus halmaturinus Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 43, Apl. 2, 1912 : Kangaroo Island, South Australia.

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- Megalurus flindersi* Mellor and White, Emu, Vol. XII., p. 162, Jan. 1913, *n.n.* ; White and Mellor, *id.*, *ib.*, p. 164 : Flinders I., Bass Straits.
- Poodytes gramineus gramineus* Mathews, List Birds Austr., p. 210, 1913.
- Poodytes gramineus flindersi* Mathews, *ib.*
- Poodytes gramineus wilsoni* Mathews, *ib.*, p. 211 ; Belcher, Birds Geelong, p. 267, 1914.
- Poodytes gramineus goulburni* Mathews, *ib.*
- Poodytes gramineus dubius* Mathews, *ib.* ; Ashby, Emu, Vol. XVI., p. 232, 1917 ; S. A. White, *ib.*, Vol. XVIII., p. 22, 1918.
- Poodytes gramineus halmaturinus* Mathews, List Birds Austr., p. 211, 1913.
- Poodytes gramineus striatus* Mathews, *ib.*
- Poodytes gramineus thomasi* Mathews, *ib.* ; Carter, Ibis, 1921, p. 57.
- Poodytes gramineus milligani* Mathews, Austral Av. Rec., Vol. IV., pt. 6, p. 137, Aug. 1st, 1921. New name for *M. striatus* Milligan.

DISTRIBUTION. Extra-tropical Southern Australia and Tasmania.

Adult male. General colour of the upper-surface ochreous-brown with blackish elongated centres to the feathers, including the top of the head, back, wings, and tail, the margins on the inner secondaries much paler and inclining to white, the feathers on the mantle paler and inclining to grey ; flight-quills hair-brown, paler at the tip and along the inner margins ; lores and a line above the eye whitish ; sides of face ochreous-brown with more or less white intermixed ; throat, breast, and abdomen milk-white with minute dark centres to the feathers on the lower throat ; thighs rust-brown ; flanks ochreous-brown with dark shaft-lines to the feathers ; under tail-coverts similar but paler and uniform ; under wing-coverts buffy-white ; under-surface of flight-quills hair-brown slightly paler on the edges ; lower aspect of tail ochreous-brown. Bill light brown ; feet brown ; eyes brown. Total length 145 mm. ; culmen 11, wing 61, tail 67, tarsus 19. Figured. Collected at Albert Passage, South Australia, on the 24th February, 1912. The sexes are alike.

Adult male. General colour of the upper-surface olive-brown with blackish centres to the feathers, which are small on the top of the head, hind-neck, and upper tail-coverts but much more extensive on the back and wings ; innermost secondaries margined with white ; flight-quills hair-brown with pale inner margins ; tail-feathers bronze-brown with blackish shafts ; lores and a line above the eye dull white ; sides of face olive-brown with more or less white intermixed ; throat, breast, and upper abdomen dull white with dark centres to some of the feathers ; lower abdomen, sides of body, thighs, and under tail-coverts olive-brown ; axillaries and under wing-coverts cream-white ; under-surface of flight-quills hair-brown ; lower aspect of tail bronze-brown. Total length 138 mm. ; culmen 9, wing 56, tail 60, tarsus 20. Figured. Collected at Goulburn, New South Wales, in May 1892, and is the type of *Megalurus gramineus goulburni*. The sexes are alike.

Adult female. General colour of the upper-surface ochreous-brown with blackish, or dark brown centres to the feathers on the top of the head, back, and wings ; flight-quills hair-brown, paler on the inner margins ; innermost secondaries margined with whitish ; tail-feathers similar to the lower back with blackish shafts ; lores and a line above the eye whitish ; sides of face whitish with dark tips and dark fringes to some of the feathers ; throat white ; fore-neck greyish-white with minute dark centres to the feathers ; breast and abdomen whitish ; flanks, thighs, and under tail-coverts pale ochreous ; axillaries, under wing-coverts, and inner margins of quills below buffy-white, remainder of the quill-lining pale hair-brown ;

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lower aspect of tail hair-brown. Total length 120 mm. ; culmen 8, wing 56, tail 60, tarsus 21. Figured. Collected at Westernport, Victoria, on the 10th March, 1909, and is the type of *Megalurus gramineus wilsoni*. The sexes are alike.

Adult male. General colour of the upper-surface black with ochreous-brown margins to the feathers including the top of the head, upper-back, wings and tail ; flight-quills hair-brown, becoming darker and almost black on the innermost secondaries where the margins of which are much paler and inclining to white ; lower-back and upper tail-coverts rust-brown with blackish centres to the feathers ; lores and a line above the eye whitish ; a dark spot in front of the eye ; sides of face ochreous-brown with more or less white intermixed ; throat and breast white with blackish centres to the feathers ; abdomen whitish ; sides of the body ochreous with dark shaft-lines to the feathers like the thighs and under tail-coverts ; under wing-coverts and inner edges of quills below buffy-white, remainder of quill-lining hair-brown ; lower aspect of tail ochreous-brown. Bill purple-flesh, feet and legs brownish-purple, eyes reddish-hazel. Total length 136 mm. ; culmen 10, wing 56, tail 57, tarsus 22. Figured. Collected at Lake Muir, South-west Australia on the 26th November, 1911, and is the type of *Megalurus gramineus thomasi*.

The sexes are alike.

Nest. Oval with side entrance. Situated in the rushes. Composed of rushes woven round and the outside entirely covered with the silky tops of them. Lined with feathers which stick out of the opening. Outside measurements 6 inches by 4. Opening about $1\frac{1}{2}$ inches wide.

Eggs. Clutch four. Ground-colour pinkish, covered with spots of purplish-red, sometimes evenly all over, sometimes forming a zone on the larger end. 19-20 mm. by 14-15.

Breeding-season. August to January.

GOULD described this as a species of *Sphenæacus*, a genus proposed for African birds, but which he was using for Indian forms. His notes read : " Although the present species is very generally dispersed over the whole of the southern and western portions of Australia and Tasmania, in all situations suitable to its habits, it is as little known to the colonists as if it were not in existence, which is readily accounted for by its recluse nature and the localities it frequents, the thick beds of grasses, rushes, and other kinds of herbage growing in low, damp, and wet places on the mainland, and on such islands as those of Green and Actæon, in D'Entrecasteaux's Channel, being its favourite places of resort. It is a very shy species, and will almost allow itself to be trodden upon before it will quit the place of its concealment ; in the open grassy beds of the flats it is more easily driven from its retreat, but even then it merely flies a few yards, and pitches again among the herbage. Its song consists of four or five plaintively-uttered notes, repeated five or six times in succession."

Mr. Frank Littler has written me : " In Tasmania it is extremely shy, always keeping to the reeds and long rank grass with which its favourite haunts abound. It is in the habit of lying very close so that one may almost walk on it before it moves ; then only a short distance is traversed before it again

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disappears from view. Often when flushed it flies through the reeds and grass so as to be out of sight all the while, instead of rising over the reeds for a short distance and then suddenly dropping. Its food consists of insects and various seeds found in the mud. Its song is poor, being a few long drawn whistling notes."

Mr. A. G. Campbell's notes state: "Stays the winter through on many of the swamps in Victoria. It lives among the water sedges usually but in Geelong district the species is more often found in the tall grass along depressions."

Mr. F. E. Howe wrote: "During a trip to Mud Island in Port Phillip Bay we often heard and flushed this agile little creature. They appear to be fairly common on the Island but we hunted for the nests without success."

A. G. Campbell has recorded in 1902: "During this winter, on three separate occasions, I have had the opportunity of noting the Grassbird (*Megalurus gramineus*) near Melbourne. As some doubt seems to exist that this species does remain in this vicinity during the winter months, these facts will be of interest. At a swamp near Cheltenham, on 26th April, 1902, and again on 5th July following, several specimens were shot after patient waiting. At first the birds were nowhere to be seen, but after a while they ventured to the outskirts of the bullrushes to feed. They seldom whistled. On the other side of Melbourne, on the Werribee Plains, the species was again noted on 9th June, being identified by its whistle in a 'lignum' swamp."

Dove wrote from Essendon, Victoria: "During the first week in July. . . I was much interested in hearing a familiar note proceeding from a reedy island in the pond; it was a note I had not heard since leaving the banks of the Tamar (Tasmania) about eight months ago, and I knew it to be that of the Grass-Bird, usually frequenting clumps of reeds and rushes by a river-side or in wet pastures and swamps, but very unusual in a park close to the main road and frequented daily by numbers of people. This just bears out good old White of Selborne's dictum of over a century ago, that that district always turns out to be the richest in natural productions which is the most searched, and we have only to keep eyes and ears open to come upon interesting things in most unlikely places. So it was in this case. By concealing myself as much as possible and continually imitating the weird, penetrating call which arose from the thicket of reeds, I was presently able to draw the shy little fellow up fairly close to me and obtain a good view of him. Not very striking in appearance; the back marked much like that of a sparrow, under side grey with dark streaks upon the breast, tail rather long and somewhat elevated; no brilliant hues to attract the eye, but still most interesting to the naturalist from its shy nature and recluse mode of life. Scores of folk

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dwelling near rivers and swamps must be familiar with the weird call of the Grass-Bird and yet have never seen the little recluse, so closely does he conceal himself amid the dense vegetation in which he makes a home."

Mr. Tom Carter has written: "Dark Grass Birds (*Megalurus gramineus*) were fairly common along the margins of freshwater lakes and swamps near Lake Muir, and also round Albany. They creep about in a very mouselike way in the tangled undergrowth on the edges of the water, and also in the rushes over the water. They have a faint, but high-pitched musical note like 'Pe-pe-pee,' which I found rather difficult to locate. It is much like the note of *Certhionyx variegatus* (Pied Honey-eater), but not so loud. Unlike the Reed-Warblers, these birds are tame in their habits, and can easily be called up close to one. They appear to breed late in the season, December and the early months of the year. Some birds were shot by me in December 1911 that were evidently breeding, and recently fledged young were shot on April 24 of the same year, at which time the adult birds were moulting."

Milligan described a West Australian form, writing: "Was shot by me at Lake Yanchep, 35 miles north of Perth, during the last Christmas holidays. Whilst writing these notes I have before me skins of the Lake Yanchep bird, and of *M. gramineus* from Victoria and from Mandurah estuary, which is situate some 40 miles south from Perth. Little difference exists between the Victorian and Mandurah skins. On the other hand, the difference between those skins and the Lake Yanchep skins is most marked. The latter is very much smaller, and in addition lacks the oily fulvous colour of the upper-surface, sides, flanks, and tail-coverts of the former, and in lieu of it has a dullish lustreless smoky-brown. Another point of difference is that the Lake Yanchep bird is striated from chin to abdomen. . . . The estuary where the Mandurah bird was obtained is salt, and possesses extensive mudflats covered with samphire. The water of Lake Yanchep is fresh, and heavily charged with carbonate of lime, the formation surrounding the lake being limestone. Is it not possible that the presence of the rich fulvous colour of the estuary bird is due to the mudflats, and the absence of it in the Yanchep bird to the harsh and harder limestone water? The notes of the new bird are two melancholy ones, resembling in sound the syllables 'tee-tee.' In the protected area of the Swan River, at Perth, the local bird has three notes, 'titty-tee-tee.' The birds were numerous, but difficult to flush, owing to their secretive habits."

Whitlock gave a long account under Milligan's name from which I extract the following; it should be noted, however, that Milligan distinctly stated that the Lake Yanchep bird which he described was different from the one which Whitlock refers to: "The usual call is 'Tee, tee, tee, tee,' uttered in

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rather a high-pitched, piping manner, or more slowly in a lower and more musical tone. The only other notes heard from these little birds are alarm notes, which are sharp and rather harsh, resembling the syllables 'Chuck' or 'Tcheck.' One hears these when near a nest, or when young are concealed in the thick clumps of canegrass. . . . The female is not a close sitter, and only once did I flush her from her eggs. However it is almost impossible to walk quietly through the water or where the reeds are growing thickly. I was never able to detect a female in the act of building, and the males do not appear to call in the immediate vicinity of the nest. When the young are in the nest, or hidden in the neighbouring reeds, both parents become very anxious, fluttering from clump to clump with harsh cries, or even shamming lameness, or a broken wing, where the peat is above water-level. In the nest the young are able to flatten themselves down in a remarkable way. One brood I was examining was so quiet and motionless that I was quite deceived, thinking they were all dead. *Megalurus striatus* is a very jealous bird, and the greatest care is necessary to avoid disturbing an unfinished nest. One I found was just ready for eggs. I only gently felt to the bottom with one finger; but this was quite enough to cause its desertion. A new nest was built in a neighbouring clump, the lining of feathers being removed from the nest I had disturbed and utilised in the new one. All this was accomplished and four eggs laid, within seven days. About the end of January the birds appear to leave the swamp, returning towards the end of June. The males may be heard calling the following month. To my thinking, *Megalurus* has some affinity with the Reed-Warblers (*Acrocephalus*). In the nature of its haunts and the situation and construction of its nest it has much in common with the latter. Also, there is a certain peculiarity about the flesh of both genera. It is remarkably soft, and has a peculiar smell. *Megalurus* is a delicate loose plumaged bird."

Mr. Thos. P. Austin, writing from Cobbora, New South Wales, states: "Only once have I known the present species to visit this district; during the spring of 1910 a pair of them arrived, took up their quarters, and bred at a large dam in front of my house. Many years ago I found them very numerous in all the reed-beds in the district of Geelong, Victoria, where their melancholy whistle, issuing from the rushes, could be heard at all times of the day. Of our smaller birds, I know of none with such a mournful note, and it always appears to be extremely so upon a still dull afternoon just as a heavy thunderstorm is approaching. It also has an alarm note which somewhat resembles 'Chit, chit,' uttered several times. It has a very feeble power of flight, and will sometimes not take wing until forced. The nests are open cupshaped structures, formed of pieces of dry aquatic plants, and dry grass,

GRASS BIRD.

lined with feathers and roots. A few larger feathers are curved over the bowl of the nest, these conceal the eggs from view, and at times even the sitting-view."

Mr. Edwin Ashby writes: "The low and yet shrill whistle of the little Grass-Bird is the commonest note next to that of the Reed-Warblers in the swamps along the banks of the Murray. There is a strange uncanniness about its whistle so often it seems impossible to tell from which direction the sound comes and yet it sounds not more than a few yards away. It is common at the Grange near Adelaide and I found it nesting near Port Pirie early in September."

Captain S. A. White's notes read: "This little bird is in nearly every lignum, reed or flag swamp throughout the state. I met with them at Dalhousie Hot Springs in Central Australia and right down to the coast line. Their mournful little call is a familiar sound in the swamps. They build their nests in a lignum bush or in the reeds generally those growing in the water; the nest is composed of grass lined very often with animal fur, and often two Bald-Coats' feathers are placed so as to cover over the nest and hide the contents. The Kangaroo Island form seems to have the same habits and call as the mainland form; the only difference seen was in their habitat for they were often met with out in the open near salt lagoons where there was little or no cover."

Mr. J. W. Mellor has written: "The Grass-Bird, or Little Reed-Bird as it is often called, was once common at the Reed-beds, but is now no more, and its pretty little call of three notes, 'peee-peee-peee' is no longer heard. This bird loves thickly reeded and grassed land where swamps exist, but I have also seen it in dry waterless localities, notably on the small islands in Spencer's Gulf. While visiting these islands in 1907, I was surprised to come across the bird on several of the islands, especially on Williams' Island, which is a waterless piece of land, sandy and very dry, honeycombed by Petrels and thickly covered above the holes with low stunted saltbush, etc., blown and gnarled with exposure to the storms. I heard the notes and saw the bird plainly for a few seconds only a few feet away and from its note and appearance it seemed like the mainland form though the habitat was so different."

When White and Mellor described the form from Flinders Island they simply stated: "Inhabiting swampy and marshy land, where the birds keep closely to the bushes, and utter a plaintive three-note call."

This species was described by Gould from Tasmania, and the name was used for all Australian birds until 1903 when Milligan described the bird from Mid-west Australia as *Megalurus striatus*. These two species were then admitted until 1912, when I reviewed the series for my "Reference List,"

THE BIRDS OF AUSTRALIA.

when I saw that this species was a very variable one, allowing many subspecies to be easily discriminated. I, therefore, admitted six subspecies as follows:

Megalurus gramineus gramineus (Gould).

Tasmania.

Megalurus gramineus goulburni Mathews.

"Differs from *M. g. wilsoni* in being darker above, but not so dark as *M. g. dubius*. Goulburn, N.S.W."

New South Wales.

Megalurus gramineus wilsoni Mathews.

"Differs from *M. g. gramineus* in its paler coloration above and below. Westernport, Vic."

Victoria.

Megalurus gramineus dubius Mathews.

"Differs from *M. g. wilsoni* in being much darker and more streaked on the throat. Mannam, S.A."

South Australia.

Megalurus gramineus striatus Milligan.

Mid-west Australia.

Megalurus gramineus thomasi Mathews.

"Differs from *M. g. striatus* in being much darker above and on the flanks, and in having the spotting on the throat more pronounced. Lake Muir, S.W.A."

South-west Australia.

I later added:

Megalurus gramineus halmaturinus Mathews.

"Differs from *M. g. dubius* in having the dark shafts of the feathers of the head not so pronounced."

Kangaroo Island, South Australia.

And White and Mellor named:

Megalurus flindersi from Flinders Island, Bass Straits.

In my 1913 "List" these were all admitted but the genus name was changed to *Poodytes*, and the last named was ranked as a subspecies only. No alteration is necessary save that Milligan's subspecies has been renamed *Megalurus gramineus milligani* as there is a prior *Megalurus striatus* as shown in the synonymy.

GENUS—DULCIORNIS.

DULCIORNIS Mathews, Austral Av. Rec., Vol. I.,
pt. 5, p. 112, Dec. 24, 1912. Type (by
original designation) *Megalurus alisteri* Mathews.

I DIAGNOSED this genus thus: "Differs from *Megalurus* in its shorter bill and weaker feet, while the wings and tail are also shorter: from *Poodytes* in its stronger stouter bill and stronger feet with longer wings and comparatively shorter tail; the wing has the first primary comparatively longer than in *Poodytes*."

Large "Warblers" with short, stout bills, rounded wings, long wedge-shaped tails and strong legs and stout feet.

The bill is short and stout, with little basal expansion and sides compressed, lower mandible heavy and as stout as upper; culmen-ridge rounded, tip little decurved and obsolete notching only seen; the nasal groove is about one-third the length of the culmen and the nasal apertures are linear and operculate, the frontal feathering approaching on to the nasal groove but not obscuring the nostrils; the interramal space feathered, rami little diverging, about half length of mandible, gonys ascending; there are two rictal bristles.

The wing is rounded, the first primary short, about half the length of the third, which is little longer than the second and eighth, the intervening ones subequal and longest, the secondaries equal to the tenth primary, which is not much shorter than the longest.

The tail is long and wedge-shaped, the outer feathers about half the length of the middle ones, feathers pointed, outer webs very narrow, the tail-coverts, both upper and under, short.

The legs short and stout, the anterior portion of the tarsus showing five scutes, sometimes obscurely, posterior bilaminate. The middle toe is longest, without claw, equalling the inner with claw, which is subequal with the outer, claws short; hind-toe stout, the claw long but only equal to the inner toe with claw.

Order PASSERIFORMES.

No. 528.

Family SYLVIIDÆ.

DULCIORNIS ALISTERI.

TAWNY GRASS-BIRD.

(PLATE 445.)

MEGALURUS ALISTERI ALISTERI Mathews, Nov. Zool., Vol. XVIII., p. 345, Jan. 31, 1912 :
Napier Broome Bay, North-west Australia.

Megalurus galactotes Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 228, 1827.

[Not *Malurus galactotes* Temminck and Laugier, Planch. Color. d'Ois, livr. 11, pl. 65, 1823.]

Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 127, 1883 ; Hall, Key Birds Austr.,
p. 24, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 225, 1901 ; North,
Austr. Mus. Spec. Cat. No. 1., Vol. I., p. 254, 1904 ; Hartert, Nov. Zool., Vol. XII.,
p. 226, 1905, N.W.A. ; Mathews, Handl. Birds Austral., p. 74, 1908 ; Hill, Emu,
Vol. X., p. 278, 1911 (N.W.A.) ; Barnard, *ib.*, Vol. XI., p. 27, 1911 (N.Q.) ;
Macgillivray, *ib.*, Vol. XIII., p. 171, 1914 (N.Q.) ; H. L. White, *ib.*, Vol. XVI.,
p. 224, 1917 (N.T.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 27, 1917 (N.Q.) ;
Macgillivray, *ib.*, p. 201, 1918 (N.Q.) ; Campbell, *ib.*, Vol. XX., p. 62, 1920 (N.Q.).

Sphenæacus galactotes Gould, Birds Austr., pt. xxvi. (Vol. III., pl. 35), March 1st, 1847 ; *id.*,
Handb. Birds Austr., Vol. I., p. 399, 1865 ; Diggles, Orn. Austr., pt. xiv., 1867.

Megalurus alisteri alisteri Mathews, Nov. Zool., Vol. XVIII., p. 345, Jan. 31, 1912 : Napier
Broome Bay, North-west Australia.

Megalurus alisteri dulciei Mathews, *ib.* : Cooktown, North Queensland.

Megalurus alisteri oweni Mathews, *ib.* : New South Wales.

Megalurus alisteri melvillensis Mathews, Austral. Av. Rec., Vol. I., pt. 4, p. 92, Sept. 18,
1912 : Melville Island, Northern Territory.

Dulciornis alisteri alisteri Mathews, List Birds Austr., p. 211, 1913.

Dulciornis alisteri melvillensis Mathews, *ib.*, Ibis, 1914, p. 124.

Dulciornis alisteri dulciei Mathews, *ib.*

Dulciornis alisteri mayi Ashby, South Austr. Ornithologist, Vol. I., pt. 4, p. 27, Oct. 1914 :
Pine Creek, Northern Territory.

DISTRIBUTION. Tropical Northern Australia.

Adult male. Crown of head and nape chestnut-brown with dark centres to the feathers ;
upper-back, and upper wing-coverts ochreous, the feathers broadly centred with
black on the upper back but much more narrowly on the upper tail-coverts and
obsolete on the rump and lower back ; greater upper wing-coverts and flight-quills
blackish, broadly margined with ochreous, somewhat paler and more hair-brown



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DULCIORNIS ALISTERI.
(TAWNY GRASS-BIRD).

TAWNY GRASS-BIRD.

on the latter; tail-feathers bronze-brown with black shafts and obsolete cross-bars; sides of face ochreous-grey with a broad streak of the same colour from the lores to above the eye and along the sides of the crown and a few minute dark lines under the eye; throat and fore-neck milk-white; breast and middle of abdomen buffy-white; sides of abdomen, sides of body, thighs, and under tail-coverts ochreous; under wing-coverts similar but paler and showing a few dark marks on the marginal ones; under-surface of quills hair-brown, margined with cinnamon; lower aspect to tail similar to its upper-surface but paler and the shafts inclining to white towards the base. Bill brown, lower mandible whitish, feet and tarsus pale brown; eyes brown. Total length 193 mm.; culmen 10, wing 66, tail 90, tarsus 26. Figured. Collected on Melville Island on the 6th of June, 1912, and is the type of *Megalurus alisteri melvillensis*.

Adult male. Crown of head and nape ferrugineous with dark shaft-lines to the feathers; hind-neck, mantle, and back brown with black elongated centres to the feathers; upper wing-coverts ochreous-brown with blackish shaft-lines widening out on the greater series, and much more extensively on the innermost secondaries; flight-quills hair-brown with buff inner edges, the outer margins dark ochreous; rump and upper tail-coverts umber-brown with black shaft-lines to some of the feathers; tail coppery bronze-brown with dark shafts, and obsolete cross-markings; a whitish line above the eye which extends backward along the sides of the crown; throat, fore-neck, and middle of abdomen white; breast buffy-white; sides of body and under tail-coverts pale umber-brown; thighs, under tail-coverts, axillaries, under wing-coverts, and margins of quills below cinnamon; remainder of quill-lining hair-brown; lower aspect of tail similar to its upper-surface but duller. Bill with upper mandible dark horn; lower lighter; feet fleshy-pink; eyes reddish-brown. Total length 200 mm.; culmen 15, wing 69, tail 101, tarsus 22. Figured. Collected at Napier Broome Bay on the 30th of October, 1909, and is the type of *Megalurus alisteri alisteri*.

Adult female. Similar to the adult male.

Nest. Deep cup-shaped, composed of grass and lined with feathers. Outside dimensions $3\frac{1}{2}$ by $2\frac{1}{2}$ deep. Inside 2 by $1\frac{1}{2}$.

Eggs. "Clutch three. Ground colour reddish-white; freckled all over with purplish markings which predominate as usual on the larger end" (North). 20 mm. by 15.

Breeding-season. October to February.

IN the *Planches Coloriées*, published by Temminck and Laugier, a bird was figured and described as *Malurus galactotes*, and the locality given as New Holland. Specimens in the Linnean Society's collection "obtained by Mr. (Robert) Brown at Broad Sound, near the upper head, October 24th, 1802," were referred by Vigors and Horsfield to this species but transferred to the genus *Megalurus* just previously instituted by Horsfield for a Javan bird. They, however, commented: "This bird has been placed by Mr. Temminck among the *Maluri*; but the strength of its formation with respect to its bill, legs, and tail, by no means accords with the characters of those birds. It belongs more properly to *Megalurus*, although not exactly agreeing with the typical species; its structure being weaker in comparison with them, as it is stronger with respect to the *Maluri*. It seems to indicate a passage between the two groups."

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Gould maintained the species name *galactotes* but removed it to the genus *Sphenæacus*, misusing that name for Indian species whereas it had been proposed for African birds, and wrote: "This is a scarce species in New South Wales, the few individuals I have seen being from the grassy districts of the Liverpool Plains; in all probability, however, it ranges along the eastern and over the whole of the northern portion of Australia."

Gilbert's notes inform me that he found it "tolerably abundant on the islands at the head of Van Diemen's Gulf, where it inhabits the long grass or rushes growing in or adjacent to the swamps; it is so shy that it is very rarely seen; when closely hunted it takes wing, but flying appears to be a difficult action at all times; at least I have never seen it sustain a flight of more than a hundred yards at the utmost, and even in that short distance it seemed ready to sink into the grass with fatigue. The only note I have heard it emit is a harsh and rapidly repeated *chutch*. The stomachs of those I dissected were extremely muscular, and contained the remains of insects of various kinds and what appeared to be vegetable fibres."

Macgillivray, recording the bird-life of North Queensland, wrote: "A female of the Tawny Grass-Bird was shot in the long grass in one of the open pockets on the 8th November, and several were flushed after this at different times up to the commencement of the wet season, when the grass began to grow longer and denser; it was then a difficult matter to disturb them. Occasional in swampy places along the Archer River."

A little later Campbell, reporting upon birds from Torres Straits' Islands, wrote: "One male and three females. Seemingly identical with specimens procured in Northern Territory and North-west Australia. The species shows a preference for coastal regions and islands adjacent thereto. This is the first record of the bird being found in the locality of Cape York. Mr. H. G. Barnard and I, when at Cardwell, 1916, flushed this species on the flats of long grass among the timber and obtained a specimen."

I wrote in 1912, when I proposed *Megalurus alisteri* as a new species: "The name hitherto used for this bird has been *M. galactotes* Temminck. Reference to the original figure and description shows this to be inapplicable. The figure (*Plan. Color. d'Ois*, Vol. I., 11^e livr., pl. 65, fig. 1, 1823) gives a bird disagreeing entirely in general coloration with the Australian bird, and especially in having the head striped distinctly with black, no white eyebrow, and the tail spotted near the end with black and having a white tip. The locality given by Temminck (New Holland) must, therefore, be erroneous, and I find that Temminck's figure is almost certainly that of an African species of *Cisticola*, and moreover, agrees quite well with the bird at present known as *C. erythrogerys* Rüppell."

TAWNY GRASS-BIRD.

Hill has written from Kimberley, North-west Australia : " On my arrival at the station, in the middle of October, the Tawny Grass was one of the first species to attract my attention. About a dozen birds inhabited a patch of very luxuriant swamp grass on the edge of the small area of tropical forest ; but, owing to the height of most of the grass (6 or 7 feet) I had to confine my observations to a few pairs and some odd birds inhabiting shorter growths. Having doubts as to their identity, I determined to spare no effort to secure eggs, for I felt sure the nesting-season was approaching, if it had not already arrived. I found that the mated birds never moved far from a given point, and that I could rely upon finding them within a few yards of the same place day after day. When cautiously approaching the domain of a pair, the first intimation of their presence would be two sharp notes and the rustling of dry leaves as the birds crept through the matted grass down to the ground. An attempt to flush the bird from its hiding-place would bring all hope of further observations to an end, but, if absolute stillness were maintained for perhaps fifteen minutes, the rustling would be renewed, and presently the bird would appear for an instant, utter its pleasing notes once more, and again disappear from sight, leaving only the sound of its movements in the grass to warn the watcher of its approach. After a few re-appearances in this manner its curiosity would get the better of its judgment, and it would hop and flutter to a higher position in the grass, survey the intruder for a moment at short range, and then finally disappear. The unattached birds do not remain within such a limited area, and show far less desire to conceal themselves. It struck me as a remarkable fact that these unattached birds were nearly always found in company with one or two Grass-Warblers. Neither species confines itself to open grass flats, for I have frequently watched them, both separately and in company, feeding on the ground amongst ferns growing in the densest patches of forest, where the light was so dull that it was not easy to follow their movements. After spending so much time, and suffering not a little from mosquitoes, in this swampy locality I was disappointed to find that the Grass-birds had all left the district about 17th November. A few days later the last of the Grass-Warblers had gone also. On 13th May the first *Megalurus* returned with their young, and were followed by the *Cisticola* one month later."

When I prepared my " Reference List " in 1912 I determined *Malurus galactotes* Temminck, as quoted above, to refer to some other bird and, therefore, described the present species as *Megalurus alisteri*, admitting three forms, viz. :

Megalurus alisteri alisteri Mathews.

North-west Australia and Northern Territory.

Megalurus alisteri dulciei Mathews.

North Queensland.

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“Differs from *M. a. alisteri* in having the head more streaked, and a paler rump.”

Megalurus alisteri oweni Mathews.

New South Wales.

“Differs from *M. a. dulciei* in being darker above.”

I later added :

Megalurus alisteri melvillensis Mathews.

Melville Island.

“Differs from *M. a. alisteri* in being darker above and in having a shorter wing.”

In my 1913 “List” I synonymised *M. a. oweni* with *M. a. dulciei* and only admitting three subspecies under the genus name *Dulciornis*.

A little later Ashby wrote: “*Dulciornis alisteri*. The specimens sent by Mr. May of this species are paler, and the crown of the head less darkly striated, and ground-colour rufous, not chestnut as in the Melville Island bird. It is evidently a race distinct from the island form, from which I suggest it should be distinguished under the name of *Dulciornis alisteri mayi* n.s. (The Northern Territory Grass-Bird).”

At the present time then five races may be admitted :

Dulciornis alisteri alisteri (Mathews).

North-west Australia.

Dulciornis alisteri mayi Ashby.

Northern Territory.

Dulciornis alisteri melvillensis (Mathews).

Melville Island, Northern Territory.

Dulciornis alisteri dulciei (Mathews).

North Queensland.

Dulciornis alisteri oweni (Mathews).

New South Wales.

The bird figured by Temminck et Laugier in *Planch. Color.*, Vol. I., plate 65, as *Malurus galactotes*, is very similar to the bird figured by Gould, Vol. III., pl. 41, as *Cysticolor magna*.

GENUS—EREMIORNIS.

EREMIORNIS North, Vict. Naturalist, Vol. XVII.,
No. 4, p. 78, August 9th, 1900. Type (by
monotypy) *Eremiornis carteri* North.

MEDIUM "Warblers" with short, stoutish bills, with very rounded wings,
long wedge tail of *ten* soft, broad feathers, short legs and small feet.

The bill is very like that of the preceding genus, rictal-bristles obsolete.

The wing is rounded, the first primary half the length of the third
which exceeds the second very slightly and from the third to the ninth the
primaries are subequal and longest; the tenth is a little shorter, equal to the
second and the secondaries are the same length.

The tail is long and fan-shaped, composed of *ten* broad soft feathers;
the upper and under tail-coverts more than half the length of the longest tail-
feathers and equalling the outer tail-feathers.

The legs are short, anteriorly the tarsus bears four scutes and posteriorly
it is bilaminate; the middle toe without claw is equal to the inner toe with
claw which is subequal with the outer; the hind-toe is stouter, and the claw
is longer but the hind-toe and claw is only about equal to the inner toe and
claw.

So much has been written about this rare bird that it is better known
than many "commoner" forms. North was quite right in distinguishing
it from *Schœnicola*, and the resemblance seems to me purely superficial and
does not indicate close relationship at all. Both are degraded semi-flightless
forms but probably have evolved quite independently. In addition to the
longer and stouter legs of *Schœnicola*, the wing formula is different, and the
tail-feathers differ in number as well as the different proportions of the tail-
coverts.

Order PASSERIFORMES.

No. 529.

Family SYLVIIDÆ.

EREMIORNIS CARTERI.

SPINIFEX BIRD.

(PLATE 446.)

EREMIORNIS CARTERI North, Vict. Naturalist, Vol. XVII., No. 4, p. 79, Aug. 9th, 1900 ;
North-west Cape, West Australia.

Eremiornis carteri North, Victorian Naturalist, Vol. XVII., p. 79, 1900 ; *id.*, *ib.*, p. 93 ;
id., *ib.*, Vol. XIX., pl. at p. 71 ; Campbell, Nests and Eggs, Austr. Birds,
Vol. II., p. 1083, 1901 ; Selater, Bull. Brit. Orn. Club, Vol. XII., p. 51, 1902 ;
North, Ibis, 1902, p. 608, pl. xiv. ; Hall, Emu, Vol. I., p. 110, 1902 ; North, Austr.
Mus. Spec. Cat. No. 1, Vol. I., p. 252, 1904 ; Hartert, Nov. Zool., Vol. XII., p. 226,
1905 ; Hall, Key Birds Austr., 2nd ed., p. 111, 1906 ; Mathews, Handl. Birds
Austral, p. 74, 1908 ; Whitlock, Emu, Vol. VIII., p. 181, 1908 ; Mathews, Nov.
Zool., Vol. XVIII., p. 345, 1912 ; Whitlock, Emu, Vol. XVII., p. 168, 1918 ; H. L.
White, *ib.*, Vol. XVIII., p. 128, 1918 ; Whitlock, *ib.*, p. 250, pl. XL., 1919 ;
Campbell, *ib.*, p. 258.

Eremiornis carteri assimilis Montague, Austral Av. Rec., Vol. I., pt. 8, p. 181, March 20,
1913 : Hermite Island, Monte Bello I. ; *id.*, Proc. Zool. Soc., p. 634, 1914 ;
Mathews, List Birds Austr., p. 212, 1913 ; Whitlock, Emu, Vol. XVII., p. 178, 1918.

Eremiornis carteri rogersi Mathews, Austral Av. Rec., Vol. I., pt. 8, p. 192, March 20, 1913 :
Halls Creek, Kimberley Gold Fields, North-west Australia ; *id.*, List Birds Austr.,
p. 212, 1913.

Eremiornis carteri carteri Mathews, List Birds Austr., p. 212, 1913 ; Carter, Ibis, 1921, p. 57.

DISTRIBUTION. Mid- and North-west Australia. Barrow and Monte Bello Islands.

Adult female. General colour above rufous-brown, including the head, back, and wings,
somewhat brighter on the fore-part of the head ; inner webs of flight-quills pale
hair-brown with buff inner margins ; tail dark brown with obsolete wavy cross-
bars and slightly paler edges to some of the feathers ; lores, feathers above and
below the eye, sides of crown, and ear-coverts silvery-grey, somewhat darker on
the last ; sides of neck tinged with drab-grey ; throat, breast, and middle of abdomen
buffy-white with blackish bases to the feathers ; sides of body, thighs, and under
tail-coverts fawn colour, the long under tail-coverts blackish subterminally ;
under wing-coverts and inner margins of quills below buffy-white, remainder of
quill-lining pale hair-brown ; lower aspect of tail blackish-brown with pale tips



H. Grönvold, del.

Witherby & Co.

ORIGMA SOLITARIA.

(*ROCK-WARBLER*).

CHTHONICOLA SAGITTATA. EREMIORNIS CARTERI.

(*LITTLE FIELD-WREN*).

(*DESERT-BIRD*).

SPINIFEX BIRD.

to some of the feathers. Bill brown, lower mandible leaden-grey; feet and tarsus light brown; eyes brown. Total length 154 mm.; culmen 12, wing 56, tail 71, tarsus 15. Figured. Collected at Hall Creek, Kimberley Gold-fields, North-west Australia, on the 20th of July, 1909.

Adult male. Similar to adult female.

Nest. "Cup-shaped, substantially built of finely shredded grass or herbage and lined with fine roots and placed in a bunch of spinifex. Measurements across $5\frac{1}{2}$ inches by $2\frac{1}{2}$ deep over all; egg cavity $2\frac{1}{4}$ inches by $1\frac{1}{4}$ inches" (H. L. White).

Eggs. "Clutch two; ground colour pinkish-white, closely covered all over and particularly at the larger ends with minute markings of pale lilac and purplish-brown and from light to dark reddish-brown." Dimensions 17-18 mm. by 12" (*ib.*).

Breeding-season. August (Barrow Island) (*ib.*).

THE discoverer of this beautiful form, Mr. Tom Carter, has given me the following account: "April 13th, 1898, was, I believe, the date upon which I first shot specimens of the Desert-Bird, although they had often attracted my attention on previous occasions, as they flew from one large bunch of 'Buck Spinifex' to another. These 'first procured' birds were shot in brushes of large Spinifex on the Mandoo-mandoo Creek on the west side of the North-west Cape, and about forty miles north of Point Cloates. One of the above birds was forwarded to Mr. A. J. Campbell for his opinion as I thought it was quite a new species, but he replied that it was only a Tawny Grass-Bird, and that Mr. Robert Hall agreed with him. I was not satisfied so I sent specimens to Mr. A. J. North, who determined them to belong to a new genus as well as being a new species. On many subsequent occasions Desert-Birds were observed and procured on various parts of the North-west Cape Peninsula, north of the Yardie Creek. Rather curiously they were never seen south of that creek, but doubtless they occur on that side. They are to be found mostly in Spinifex (*Triodia*) but are also seen in low scrub composed of salt bush, etc., at the foot of the ranges. They were nowhere abundant, but in the course of a half-day's drive through the scrub, on the flat below ranges sometimes four or six birds might be flushed as the buggy went along, at other times none would be seen. When disturbed, the birds fly to other cover, a short distance away, often only a few yards, with rapidly fluttering wings, and tail expanded and drooping. After once being flushed, it is difficult to 'rise' the bird a second time. On one occasion I shot at, and wounded a bird, which fluttered into a bunch of Spinifex, out of which grew a small scrubby bush. After a long and unsuccessful search for it, I systematically pulled up by the roots and threw on one side, all the Spinifex bush, dead leaves, etc., until nothing remained but one branch about one inch in diameter, that grew pressing along the ground. My native horse-boy had been keeping

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a watch to see that the bird did not escape while I was so engaged, and he now said the bird was under this branch. I did not think it was, but upon lifting it up, the bird was discovered, lying lengthways below it. It fluttered away, but was captured. The only sound that was ever heard from any of this species was a rather harsh 'Chat-chat.' They seem to feed largely on the familiar black 'pie-dish' beetles (*Helæus*) as well as on other species, and small grasshoppers, as proved by examination of the gizzards of all birds shot. Towards the end of August 1913 I spent several days systematically searching all the likely gullies and places around the Yardie Creek for signs of these birds but never saw one of them. Since I left Point Cloates, the old original station has been divided amongst four owners, and sheep now feed regularly over the greater part of the North-west Cape Peninsula, much of which is fenced and paddocked, and most of the old Spinifex of large size has been burnt off, so that there is now not nearly so much cover nor quietness for birds of habits like *Eremiornis*. At the time of writing this the nest and eggs are still undescribed but the following is copied from my note in '*Emu*, Vol. I., p. 56' on the finding of a supposed nest: 'Sept. 16, 1901. When driving in my buggy through the thick grey-leaved species of Saltbush, in which one finds this bird (N.W. Cape Peninsula), and which, growing from 3 to 4 feet in height, is very difficult stuff to 'wade' through, I noticed an old bird fly from a bush. Upon reaching the place I found a nest, which I have no doubt belonged to this bird. It was built among the twigs, about one foot from the ground, and was a bulky structure measuring about 4½ inches across the top, and 3 inches in depth. The top was quite open and somewhat deep. The nest was made of dry grass and fibre, some of the latter having a texture like loose (frayed) twine. Lining there was none, but several dead Saltbush leaves were in the bottom, having probably fallen in. Inside the nest and below it, were numerous elytræ of beetles, mostly of the *small shield (pie-dish) beetles*. The old bird perhaps resorted to the nest to eat them. Young birds appeared to have recently left the nest. The bird shot was a male. This nest was sent to the Perth West Australian Museum.' "

From the Pilbarra Goldfield Whitlock wrote: "This species was confined to the Spinifex of the Upper Coongan, and was by no means common. I spent a lot of time over it, and then did not get a nest, though I actually saw in several instances the parent birds carry building material into a clump of Spinifex, and after a short interval, come out of the same clump with the beak empty. I think, had I remained a little longer in the district, I should have been successful, as the species is evidently a late breeder. But I was anxious to reach the main de Grey, which had been pictured to me as a sort of ornithological 'land of promise,' but there the species was quite absent."

SPINIFEX BIRD.

Whitlock later renewed the search and has written very full accounts, from which I take the following: "In the Upper Coongan district this species cannot be called rare; it is very local, and shows a decided preference for haunts where observation is difficult. Before the breeding-season actually commences pairs may be met with in the small gullies at the foot of the ranges; but I think at nesting time they retire to the open flats adjacent to the larger creeks, where the Spinifex (*Triodia*) grows to a large size, and where the big clumps are very numerous and close together. When observing the Desert-Bird, I always think that 'Spinifex-Bird' would have been a more appropriate trivial name. Our north-west coast at its worst can hardly be regarded as a 'desert,' considering its numerous rivers and creeks, the majority of which are well-timbered with eucalypts and other trees of respectable dimensions. On my last trip I found the best place for observing the Desert-Bird was a large flat of fairly rich alluvial soil not far from a large creek. The Spinifex here was growing in great profusion and size, many clumps measuring as much as 10 feet in diameter with occasional larger ones; others of from 5 to 8 feet in width were innumerable. Small bushes were frequent, with occasional trees, the latter, as a rule, not giving much shade. Within a distance of a mile and a half I had five pairs of Desert-Birds under constant observation. To find these birds one must learn the call-note, and learn it, too, so well as to be able, when heard at a distance, to distinguish it from the call of the Common Pipit (*Anthus australis*) and also from distant calls of the Wood-Swallows (*Artamus*) and accidental notes of other species. After listening at close quarters to a male perched on a small bush, I cannot render the sound better than by the French words '*Je suis, à vous*' (pronounced Je swee, ah voo). More often than otherwise only the first syllables are uttered, then the call closely resembles that of the Pipit. One, as a rule, rarely sees the female, but her presence may be ascertained by carefully listening. Almost simultaneously with the liquid notes of the male, she adds two or three rather grating sounds, somewhat resembling two stones being rubbed together. The sound is difficult to render on paper, but the syllables 'Thrip-thrip' will give some idea of its character."

Visiting Barrow Island Whitlock was successful in finding the eggs and, as usual, has written up a delightful detailed account, but I can only give a few extracts relating to the habits: "However, near my camp I became aware of another pair inhabiting a large patch of mingled *Triodia* and *Spinifex longifolius*, which, I felt sure, had not recently nested. The male in this instance called regularly at daybreak, and also during the day, and again in the evening till after sunset. . . . Having located a male, watch him, and listen in an unobtrusive way for the presence of his mate. The male always

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calls at daybreak, and, unless it is very windy, at intervals during the day, and again in the evening till after sunset. He is not timid, and will call from any point of vantage. If the female is there she frequently adds to his call of 'Je suis' three harsh grating notes like the syllables 'Jut-jut-jut,' the interval between the second and third notes being shorter than that between the first and second. The female is much more secretive than the male until the young are being fed. . . . I am of opinion the female does all the nest-building, and that the male calls from any point of vantage near to the nest. So far I have no evidence that the species builds in anything but the harsh, prickly Spinifex (*Triodia*); but it occasionally happens that small bushes are surrounded by this grass, and a fork of such a bush might be used as a nesting-site, provided it was well hidden by the surrounding growth. In all, I have found but four nests, from three of which the young had flown. One was in a very large clump, two in rather smaller, and one in quite a small clump surrounding a slender bush. I must state that pairs are only found where the Spinifex is of luxuriant growth, and not where a wide area presents a view of innumerable small clumps. . . . The eggs show an affinity with those of *Megalurus* and also with those of the European Grasshopper-Warbler (*Locustella naevia*). The nest, too, though it differs from that of *Megalurus striatus*, is not unlike that of the Grasshopper-Warbler, being entirely composed of fine grasses, without any lining of fur or feather. The three species of birds, again, show a strong family likeness, and all seem to haunt dense cover, in which they hide their nests. There is, however, a wide difference in their call-notes. This is especially marked in the case of the Grasshopper-Warbler. In flight the Spinifex-Bird seems much encumbered by its long, broad tail, which is not borne horizontally, but in a semi-drooping fashion. The flight is performed in a straight line, at a very low elevation, and in a feeble, fluttering manner, as though the bird was anxious at the first chance to drop into cover."

P. D. Montague, who described the form inhabiting the Monte Bello Islands, wrote: "Differs from *E. c. carteri* in its smaller size, proportionately larger bill, and in the colour of the head, which is of a deeper and richer chestnut-brown. The mainland representative (*E. c. carteri*) is a somewhat scarce bird inhabiting the Spinifex-country in the region of North-west Cape. The Monte Bello form is found principally upon the Spinifex-plains of Hermite, where it is rather common. It frequents the low scrub, slipping with ease and rapidity amongst the very thickest and most prickly bush, making good use of its long tail to guide and balance itself in so doing. Occasionally it will appear for an instant at the summit of a bush or tuft, utter a harsh clicking note, and disappear almost immediately, or make a short and hurried flight to the next thicket."

SPINIFEX BIRD.

Rogers' first note of this bird from the North-west read: "This is a rare species. I secured the specimen in the Spinifex, where it was hiding very close. When flying it carried the tail widely spread."

When Montague described the Monte Bello form we compared all the specimens available and I also described:

Eremiornis carteri rogersi Mathews.

"Differs from *E. c. carteri* in being much more reddish above."

Kimberley Gold Fields, North-west Australia.

Recently Campbell and Whitlock have confirmed the distinction of the island form, but would not accept the above. Nevertheless three forms as given in my 1913 "List" are recognisable, viz.:—

Eremiornis carteri carteri North.

Mid-west Australia.

Eremiornis carteri assimilis Montague.

Monte Bello and Barrow Islands, M.W.A.

Eremiornis carteri rogersi Mathews.

North-west Australia.

GENUS—ORIGMELLA.

- ORIGMELLA Mathews, Austral Av. Rec., Vol. II.,
pt. 4, p. 76, Dec. 29, 1913. Type (by original
designation) *Sylvia solitaria* Lewin.
Origma Gould, Synops Birds Austr., pt. IV, App. p. 3,
Apl. 1, 1838. Type (by original designation) ... *Sylvia solitaria* Lewin.

Also spelt—

Orygma Des Murs in Chenu's Encycl. & Hist. Nat., Vol. IV., p. 39, 1854.

Not—

Orygma Meigen, Syst. Besch. Zweifl. Insect., Vol. VI., p. 6, 1830.

SMALL birds with long slender bills, rounded wings, long square tail and medium legs and feet.

The bill is shorter than the head, laterally compressed with very little basal expansion, the culmen ridge showing a semikeel with the sides slope steep and the tip scarcely notched; there is a deep nasal groove, about one-third the length of the bill in which the linear nostrils are seen, hidden by a notable operculum; the under mandible is rather weak, the interramal space one-third its length, the gonys a little upcurved; the rictal bristles are four in number, strong and prominent, the frontal feathers approaching on to the nasal groove.

The wing is very rounded, the fourth, fifth, sixth and seventh primaries equal and longest, the eighth as long as the third, the second shorter than the secondaries which equal the tenth, while the first primary is about half the length of the third.

The tail feathers are broad, the shape square.

The legs are long and slender, the tarsus booted in front and bilaminate posteriorly.

The toes are slender, the outer longer than the inner; the outer toe and claw shorter than the middle toe without claw; the claws rather long and sharp; the hind-toe short and stouter with the claw longer so that the hind-toe and claw is equal to the outer toe.

ORIGMELLA SOLITARIA.

ROCK-WARBLER.

(PLATE 446.)

SYLVIA SOLITARIA Lewin, Birds New Holland, pl. xvi., 1808 : New South Wales.

Sylvia solitaria Lewin, Birds New Holland, pl. xvi., 1808.*Saxicola solitaria* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 236, 1827.*Origma solitaria* Gould, Synops. Birds Austr., pt. iv., App., p. 3, April 1838 ; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 148, Dec. 1838 ; Mathews, Nov. Zool., Vol. XVIII., p. 346, 1912 ; List Birds Austr., p. 212, 1913.*Origma rubricata* [Not *Sylvia rubricata* Latham, Index Orn. Suppl., p. lv., 1801] Gould, Birds Austr., pt. xxiii. (Vol. III., pl. 69), June 1st, 1846 ; *id.*, Handb. Birds Austr., Vol. I., p. 385, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 135, 1883 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 24, 1899 ; Campbell, Nests and Eggs, Austr. Birds, Vol. I., p. 226, 1901 ; North, Austr. Mus. Spec. Cat. No. I, Vol. I., p. 311, 1904 ; Mathews, Handl. Birds Austral., p. 74, 1908.*Origma solitaria pallida* Mathews, Austral Av. Rec., Vol. III., No. 3, p. 60, April 7, 1916 : Blue Mountains, New South Wales.*Origmella solitaria* Mathews, *ib.*, p. 66.*Origmella solitaria solitaria* Mathews, *ib.**Origmella solitaria pallida* Mathews, *ib.*

DISTRIBUTION. New South Wales.

Adult male. General colour of the upper-surface dusky smoke-brown including the top of the head, back, upper tail-coverts and wings ; inner webs of flight-quills dark hair-brown, paler and inclining to buff towards the base and inner margins ; tail black with obsolete wavy cross-bars ; lores and sides of face paler than the crown and more or less tinged with rufous ; *chin and throat dusky grey with black bases to the feathers, which show through more or less and give a spotted appearance* ; fore-neck, breast and sides of breast *chestnut becoming darker* and much duller on the abdomen, sides of body, thighs and under tail-coverts ; axillaries, under wing-coverts and inner margins of quills below vinaceous, remainder of quill-lining dark hair-brown ; lower aspect of tail blackish-brown. Bill horn, legs and feet blackish ; eyes brown. Total length 130 mm. ; culmen 13, wing 72, tail 57, tarsus 26. Figured. Collected on the Blue Mountains, New South Wales, in May 1915.

NOTE.—The italics are put in to show that “*rubricata*” cannot be used for this species.

The sexes are alike.

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Immature.—Very similar to the adults but duller.

Nest. “Dome shaped with hooded side opening. Composed of bark or bark fibre, coated with fine green moss and a slight addition of cobwebs and the silky covering of the egg-bags of spiders. Lined with feathers and fine bark fibre. The upper portion of the nest, where it is attached to the ceiling of the cave, is formed almost entirely of cobweb. Measurements 10 inches long by $4\frac{1}{2}$ wide.” (North.)

Eggs. Clutch, three. White. 20 mm.—15.

Breeding-season. August to December. (Two broods).

LEWIN figured this beautiful bird and Caley also collected it, and so did Robert Brown. Caley's notes read: “*Cataract Bird*: an inhabitant of rocky ground. While at the Waterfall of Carrung-gurring, about thirty miles to the southward of Prospect Hill, I saw several of them. I have also seen them in the North Rocks, about a couple of miles from Paramatta: and always upon the rocks. I never observed them in trees or bushes.”

Gould wrote: “The true habitat of this species is New South Wales, over which part of the country it is very generally distributed wherever situations occur suitable to its habits; water courses and the rocky beds of gullies, both near the coast and among the mountains of the interior, being equally frequented by it; and so exclusively in fact is it confined to such situations that it never visits the forests, nor have I ever seen it perching on the branches of the trees. It does not even resort to them as a resting place for its nest, but suspends it to the ceilings of caverns and the under-surface of overhanging rocks in a manner that is most surprising; the nest, which is of an oblong globular form, and composed of moss and other similar substances, is suspended by a narrow neck, and presents one of the most singular instances of bird-architecture that has yet come under my notice. Its food consists of insects of various kinds. Its note is a low squeaking sound, which it utters while hopping about the rocks with its tail raised above the level of the body, after the manner of some *Acanthizæ*.”

Ramsay stated: “The Rock-Warbler is a very pleasing and lively little bird, and seems to love solitude. I have never seen it perch on a tree, although I have spent several evenings in watching it. It runs with rapidity over the ground, and over heaps of rubbish left by floods, where it seems to get a good deal of its food. Sometimes it will remain for a minute on the point of a rock, then, as if falling over the edge, repeat its shrill cry, and dash off into some hole in the cliffs. The nest is of an oblong form, very large for the size of the bird, with an entrance in the side about two inches wide. It is generally suspended under some overhanging rock, and is composed of fibrous roots interwoven with spider's webs; the bird evincing a preference for those webs which contain the spider's eggs, and that are of a greenish colour. The moss

ROCK-WARBLER.

does not assume the shape of a nest until a few days before it is completed, when a hole for entrance is made, and the inside is warmly lined with feathers ; but when finished, it is a very ragged structure, and easily shaken to pieces. The birds take a long time in building their nests ; one found on the 6th of August was not finished until the 25th of that month ; on the 30th, three eggs were taken from it. This nest was suspended from the roof of a small cave in the gully of George's River, near Macquarie Fields, and was composed of rootlets and spiders' webs, warmly lined with feathers and opossum-fur ; it contained three eggs of a pure and glossy white, each of which was $8\frac{1}{2}$ lines in length by $6\frac{1}{2}$ in breadth. The breeding-season lasts from August to December, during which two broods are reared. I have never found more than *one* nest or one pair of birds near the same part of the gully ; and I do not think they will make their nests near each other, much less under the same rock."

Mr. Edwin Ashby has written me : "I observed this bird at Woodford in the Blue Mountains, New South Wales, in June, 1915, where it was flitting about the rocks and low clefts in the sides of most of the gullies ; the birds ran very swiftly over the rocks but seemed very retiring. I have also seen it in similar situations in the rocky gullies running down to Middle Harbour, Sydney, but although I kept a look out for it in suitable situations near Buli, south of Sydney, I did not see it there."

Mr. J. W. Mellor's notes read : "I have seen this little bird fairly plentiful in the National Reserve near Sydney, where it lives in the rocky country, and where caves are formed by the wearing away of the softer parts of the stone it builds its nest. A pair of young could hardly be detected from their parents at a distance but upon examination they had a less brilliant coloration of rusty brown."

This lovely little bird was figured by Lewin who named it *Sylvia solitaria*, and in 1837 Gould proposed a new generic name for it and it has been allowed generic distinction ever since. When the Lambert drawings were examined by G. R. Gray, Gould and Strickland, they determined a drawing as representing this species and thereupon displaced Lewin's name by one proposed by Latham, viz. *Sylvia rubricata*, and upon Gould's acceptance this name was continually used, the bird becoming well known under the name of *Origma rubricata*. A few years ago when the Watling paintings were acquired by the British Museum the painting upon which Latham had written the name Ruddy-Warbler was recognised by Sharpe as that of a Cuckoo. However, through inadvertence, Sharpe did not make any alteration so that it was left for myself. I then utilised *rubricata* for the Cuckoo, and revived *solitaria* for the Rock-Warbler, and I have used this ever since. Just recently the Check List Committee of the Royal Australasian Ornithologists Union drew my attention to the fact that

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the description given by Latham of his Ruddy-Warbler did not agree with the Cuckoo and advised the rejection of the name for the Cuckoo, and its renewal of *rubricata* for the Rock-Warbler. I thereupon investigated the matter in view of this fresh interpretation and found that the picture of the Cuckoo which Latham himself recognised as his Ruddy-Warbler could not have been the one upon which his description was based.

In order to have the facts on view in one place I reprint the Lathamian descriptions :

“*S. rubricata*.—*S. cinereo-fusca* subtus toto ferrugineo-rubra, alis caudaque fuscis. Ruddy-Warbler, Gen. Syn. Sup. ii., p. 249, 34. Habitat in Nova Hollandia : rostrum gracile : pedes flavi : irides avellaneæ.

“RUDDY WARBLER.—This is a trifle larger than the *Red-breast* : the bill is slender and dusky : irides hazel : legs yellow : the plumage above brownish ash colour : beneath wholly ferruginous, inclining to yellow : wings and tail brown, the last rounded in shape. Inhabits New South Wales.”

This description did not agree with the painting associated with the name by Latham himself as the upper-surface is bluish-grey and the under-surface is pinkish-red, without any inclination to yellow, and the tail shows the white markings of the Cuckoo ; there is still *no* doubt whatever that the painting is of the Cuckoo, but there can be no hesitation in rejecting the description of the Ruddy-Warbler as referring to that painting, notwithstanding Latham's note. However, the description of the Ruddy-Warbler is not applicable to the Rock-Warbler as no one could distinguish the dark under-coloration as “*ferruginous inclining to yellow.*” Further, there is no mention of the notable grey throat of the Rock-Warbler in the description and neither are the “*irides hazel*” nor the “*legs yellow.*”

Consequently while I agree with the rejection of the name *rubricata* as available for the Cuckoo, I cannot at all consider the rejection of *solitaria*, an absolutely certain name, in favour of the inaccurate *rubricata* which I do *not* believe was based on this species.

The genus name *Origma* provided by Gould had been used previously by Meigen under the spelling *Orygma* and cannot be maintained. As a matter of fact Des Murs spelt Gould's name *Orygma* as he concluded Gould had simply made a mistake in his spelling. I have altered the name to *Origmella* and I also named the Blue Mountain form *O. s. pallida* writing : “Differs in being lighter,” but at present I am not continuing the separation as there is not sufficient material to determine the variation present.

There are a few references to its nesting habits in the *Emu* which can be easily traced from the General Index now published, but which add nothing to the good accounts already on record by North and Campbell in their standard works.

GENUS—CHTHONICOLA.

CHTHONICOLA Gould, Proc. Zool. Soc.

(Lond.) 1847, p. 35, May 17. Type

(by original designation) *Anthus minimus* Vigors and Horsfield
=*Sylvia sagittata* Latham.

SMALL birds with short stout bill, round wings, long tail and medium slender legs and weak feet.

The bill is shorter than the head, arched, with the tip decurved, posteriorly notched, laterally compressed slightly basally expanded: the nostrils appear as linear slits, the operculum swollen, the nasal groove nearly half the length of the bill; the under mandible stout, interramal space narrow. Rictal bristles weak, only two in number, and no nasal bristles.

The wing is rounded, the third, fourth, fifth and sixth primaries subequal and longest, the second a little shorter equal to the tenth and also the secondaries while the first is very short, only about half the length of the second.

The tail is long and slightly rounded.

The tarsus is of medium length, slender, the front booted, the hinder aspect bilaminate; the toes are short and slender, the hind-toe a little stouter; the outer and inner toes are equal and shorter by the length of the claw (which is smaller) than the middle toe and claw; the hind claw a little longer, but hind-toe and claw slightly shorter than mid-toe and claw.

When Gould named this genus he distinguished it from *Anthus* with which it obviously had little relation but did not compare it with *Calamanthus* which appears to be its real ally.

CHTHONICOLA SAGITTATA.

LITTLE FIELD-WREN.

(PLATE 446.)

SYLVIA SAGITTATA Latham, Index Ornith. Suppl., p. LIV., (after May 30), 1801: New South Wales. Based on Watling Painting No. 196.

Sylvia sagittata Latham, Index Ornith. Suppl., pt. LIV., 1801.

Streaked Warbler Latham, Gen. Synops. Birds, Suppl. II., p. 247, 1801.

Sylvia nitida Vieillot, Nouv. Dict. d'Hist. Nat., Vol. XI., p. 197, June 21, 1817: New South Wales.

Sylvia pyrrhophrys Vieillot, *ib.*, p. 219: New South Wales, ex Temminck MS.

Anthus minimus Vigors and Horsfield, Trans. Linn. Soc. (Lond.) Vol. XV., p. 230, Feb. 17, 1827: New South Wales.

Chthonicola minima Gould, Birds Austr., pt. xxvii. (Vol. III., pl. 72), June 1st, 1847.

Calamanthus strigatus Gray, Genera Birds, Vol. I., p. 164, 1848.

Chthonicola sagittata Bonaparte, Consp. Gen. Av., Vol. I., p. 280, 1850; Gould, Handb. Birds Austr., Vol. I., p. 390, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 290, 1883; Ramsay, Tab. List Austr. Birds, p. 9, 1888; Hall, Key Birds Austr., p. 24, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 281, 1901; Hill, Emu, Vol. II., p. 163, 1903 (Vic.); North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 261, 1904; Hill, Emu, Vol. VI., p. 178, 1907 (Vic.); Mathews, Handl. Birds Austral., p. 74, 1908; Cleland, Emu, Vol. XII. p. 11, 1912 (Food); Lawrence and Littlejohns, *ib.*, Vol. XIV., p. 220, pl. xxiv., 1915; Cleland, *ib.*, Vol. XVIII., p. 280, 1919 (N.S.W.)

Chthonicola sagittata sagittata Mathews, Nov. Zool., Vol. XVIII., p. 346, 1912; *id.*, List Birds Austr., p. 212, 1913.

Chthonicola sagittata inexpectata Mathews, Nov. Zool., Vol. XVIII., p. 346, Jan. 31, 1912: (Mitcham) Victoria; *id.*, Austral Av. Rec., Vol. I., p. 59, 1912; *id.*, List Birds Austr., p. 213, 1913; Belcher, Birds Geelong, p. 270, 1914.

Chthonicola sagittata queenslandica Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 119, Dec. 24, 1912 (Tambo) Queensland; *id.*, List Birds Austr., p. 213, 1913.

DISTRIBUTION. South Queensland; New South Wales; Victoria; South Australia.

Adult male. Crown of head blackish-brown with pale pear-shaped centres to the feathers; back blackish, the feathers broadly margined with grey; upper wing-coverts olive-brown; flight-quills dark hair-brown with pale margins on both the outer and

LITTLE FIELD-WREN.

inner webs ; upper tail-coverts ochreous ; middle tail-feathers hair-brown, darker on the outer ones which are blackish on the subapical portion and tipped with white ; eyelids and a line along the sides of the crown whitish like the feathers behind the ear-coverts ; cheeks and ear-coverts hair-brown with slightly paler shaft lines to the feathers ; throat, breast, abdomen, and sides of body yellowish-white streaked with black, more broadly on the throat, breast, sides of body and almost absent on the abdomen ; lower flanks and under tail-coverts pale buff ; under wing-coverts and inner margins of quills below whitish ; remainder of quill-lining greyish-brown ; lower aspect of tail blackish-brown with white tips to the feathers. Bill dark brown ; feet and legs light slate ; eyes chocolate. Total length 115 mm. ; culmen 7, wing 62, tail 46, tarsus 21. Figured. Collected at Mitcham, Victoria, on the 6th of August, 1910, and is the type of *Chthonicola sagittata inexpectata*.

The sexes are alike.

"Young birds resemble the adults in colour, but have the head of a duller brown and not so distinctly streaked ; there is a dull rufous-fawn eyebrow and the blackish markings to the feathers on the under-surface are smaller and more tear-shaped in form." (North.)

Nest. In a depression, dome shaped, with side entrance. Composed of grass and placed on the ground, lined with different kinds of soft material. Measurements 4 to 4½ inches wide by 3 to 3½ long. Entrance one inch.

Eggs. Clutch, three to four. Ground-colour glossy reddish-brown with a darker zone at the larger end. 18-19 mm. ; 15-17.

Breeding-season. September to January.

THIS bird was named *Anthus minimus* by Vigors and Horsfield when they described the Australian birds in the collection of the Linnean Society, but nothing was mentioned as to the collector, locality or habits. Gould again determined it as a distinct genus and later the examination of the Lambert drawings enabled the recognition of the species as Latham's Streaked-Warbler, *Sylvia sagittata*. The Watling note reads : "This bird sings remarkably well."

Gould only recorded : "This pretty little bird is usually seen on the ground in small companies of five or six in number, and is so very tame in disposition as to admit of the nearest approach, and when flushed merely flits off to the distance of a few yards. Its distribution, so far as we yet know, is confined to New South Wales and South Australia, in both of which countries it is a stationary and abundant species. It is very active in its actions, passing with great celerity over the gravelly ridges of the ground beneath the shade of the apple- and gum-trees."

Mr. Thos. P. Austin's notes read : "Sparingly distributed through the scrubs and heavier timbered areas, preferring such localities where there are plenty of logs and fallen branches lying about. It is a resident species, usually met with in pairs in low bushes or feeding upon the ground, over which it hops in search of its food. I have never seen it in clear open country. As a rule they are not at all shy, but become a little restless if closely approached, when

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they will utter a sweet, but feeble, chirp, sometimes changing into a twitter of alarm. Their nests are most wonderfully concealed under the least bit of cover, even to a small twig-like dead branch without any leaves upon it, just large enough to cover the situation of the nest. They would be invariably passed by if the sitting bird did not flush. Placed in a slight depression in the ground, dome-shaped, with side entrance level with the ground, sometimes having a small platform leading to it. Composed of strips of bark and dry grass, lined with feathers and fur. Three eggs usually form a clutch."

Mr. Tom Tregellas has written me : " The Little Field-Wren is closely allied to the Striated Field-Wren and though partaking of much the same character as the larger bird, it is never found in the same locality. The Striated Field-Wren is wrongly called, as it is never found in the fields, but always in the scrub. On the contrary, the Little Field-Wren is invariably found in the fields and paddocks, is a trustful, confiding sort of a bird, is not at all put out at the presence of human beings, and is nearly always found in the company of Yellow-rumped, Buff-rumped and Brown Tits. These latter three, with the Striated Tit, are not discomposed at the presence of strangers, and pursue their calling without interruption. The Little Field-Wren is nearly always feeding on the ground, and it is when in this position that it may be approached and its habits closely studied. It has a peculiarly sweet note when calling or answering its mate."

Mr. Frank E. Howe's notes read : " Is a very common bird in this district and is both terrestrial and arboreal. It is a most lively little creature and as it walks about in search of its food is very quick in its actions. The song is very pleasing and is not unlike that of *Sericornis brunneus* of northern parts. The nest is rarely found and then only by flushing the bird ; one that we found (Nov. 4) contained two young and an addled egg. An egg of *Chalcococcyx* was also seen on the ground in front of and about eight inches from the nest, which had evidently been sat upon and ejected by the bird. The young, not many hours old, were blind and covered with long light grey down, one tuft, nearly one inch long, hanging from the crown of the head. Gape, white ; mouth, yellow ; bill, flesh-colour with dark tips with the egg tooth still adhering to the upper mandible ; tarsi, almost white. Three days later the eyes were still closed. Later at Ringwood with Messrs. Ross, Chandler and Wilson, I found a nest containing two young and an egg which I think is that of the Black-Eared Cuckoo. On the same day (Oct. 31, 1909) I found another nest of the *Chthonicola* containing two eggs and an egg of the Square-tailed Cuckoo, all three fresh. On Dec. 4, 1909, I again found the *Chthonicola's* nest and again it contained two eggs and a Cuckoo's egg. When blowing them I noticed that the yolk was stuck to the side of the egg in all three and as we noticed that it looked like a

LITTLE FIELD-WREN.

deserted nest I conclude that it was the first nest made, and the clutch I first took was laid long after. Both nests were evidently the work of the same bird as they were both made alike and covered with green mosses and were within twenty yards or so of each other. No doubt the *Chthonicola* discovered the imposition or the Cuckoo at the nest and so deserted it but only to fall a victim a second time."

Mr. Edwin Ashby states: "Although I have collected this little bird in several localities in Victoria and New South Wales close up to the Queensland border (in the New England county) I have never seen it in South Australia. The habits of the *Chthonicola* always remind me of the arborescent *Acanthizas*, the term 'Field-Wren' seems quite inappropriate."

Three subspecies are recognised in my 1913 "List" as follows:—

Chthonicola sagittata sagittata (Latham)

New South Wales.

Chthonicola sagittata inexpectata (Mathews)

"Darker above and slightly smaller" from Victoria.

Victoria and ? South Australia.

Chthonicola sagittata queenslandica (Mathews)

"Differs from *C. s. sagittata* in the almost entire absence of buff in the flanks, and in having a much smaller amount of white tipping to the tail-feathers."

Queensland.

NOTE.—Mr. Ashby states he has not met with it in South Australia and Captain S. A. White has not sent me any notes on this bird.

In this case the remarkable streaked coloration made the recognition of the Lambert drawing upon which Latham undoubtedly based his description apparently certain, but it must be recorded that Gray did not unquestionably so determine it, writing:

" *Sylvia sagittata* Lath., Vieill.

Acanthiza sagittata

Anthus minimus V. & H. ?

As G. R. Gray was one of the most careful of ornithologists this suggested a reconsideration, especially in view of the previous case. The Watling drawings show good figures of the Streaked-Warbler, very easily recognisable, but as doubt has been cast upon their applicability in the case of the Ruddy-Warbler I herewith reproduce Latham's account:

"*S. sagittata*.—*S. nigro sagittato-striata*, corpore supra fusco subtus albo, vertice nigro striis albis, per oculos vitta ferruginea.

Streaked-Warbler, *Gen. Syn. Sup. II.*, p. 247, 29.

Habitat in Nova Hollandia, egregie cantillans: magnitudo *S. modularis*.

STREAKED-WARBLER.—Size and shape of an *Hedge-Sparrow*; bill black; legs dusky; the upper parts of the body, wings and tail, are not greatly

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different from that bird, but incline on the rump to rust-colour ; all the under-parts are white, with sagittal streaks of black ; the top of the head is black, marked with the same figured streaks of white, and the upper parts of the body with similar black ones ; from the nostrils, through the eye, and some way behind it, passes a ferruginous stripe ; tail loosely webbed and brown.

Inhabits *New South Wales* in *July* : is said to sing remarkably well."

The two names given by Vieillot, *Sylvia nitida* and *Sylvia pyrrhophrys*, seem to have been given to the same specimen, as the descriptions so exactly correspond, and both are from New South Wales.

GENUS—ACANTHIZA.

ACANTHIZA Vigors and Horsfield, Trans. Linn. Soc.

(Lond.) Vol. XV., p. 224, Feb. 17, 1827. Type

(by original designation) *Motacilla pusilla* White.

VERY small birds with medium bills, long rounded wings, long rounded tail and long slender legs and weak feet.

The bill is more than half the length of the head, very slender, laterally compressed but a little expanded basally; the culmen ridge sharp, nearly straight, a little decurved at the tip which is rather long and sharp with a noticeable posterior notch; the nostrils are linear, strongly operculate, the nasal groove less than one-third the length of the bill; nasal bristles few, rictal bristles strong and about six in number; under mandible fairly strong, interramal space very small and feathered.

The wing-feathers are strong, the fourth, fifth, sixth and seventh primaries equal and longest, the third a little less and subequal to the eighth, which is longer than the secondaries; these, however, exceed the second primary in length which is about twice the length of the short first primary.

The tail is long and a little rounded in shape.

The legs are long and slender, the tarsus booted in front and bilaminate behind; the feet are weak, the middle toe and claw equal to the hind-toe and claw, the latter claw strong and rounded, those of the anterior toes delicate; the inner and outer toes are subequal, and inner toe and claw just exceeds middle toe without claw.

These little Australian birds, known in Australia as Tits, are classed by extra-limital systematists in the Sylviidæ, but there is so little known about the anatomy of small passerine birds that such an association cannot be successfully tested at present. I certainly question any near Sylviine relationship judging from European typical Warblers.

Key to the Species.

Head lined	<i>A. lineata</i>
Head uniform	<i>A. nana</i>
Head scaled	
No buff on rump	
Lighter	<i>A. iredalei</i>
Darker	<i>A. inornata</i>
Rump buff	
Pronounced chestnut rump	
Scaling on chest not pronounced	<i>A. uropygialis</i>
Buff on rump not pronounced	
Scaling on chest very pronounced	<i>A. pusilla</i>



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ACANTHIZA PUSILLA.
(BROWN TIT).

ACANTHIZA PUSILLA.

BROWN TIT.

(PLATES 447, 448 and 451, bottom figure.)

MOTACILLA PUSILLA White, Journ. Voy. New South Wales, p. 257 and plate (before Aug.), 1790 : New South Wales.

Motacilla pusilla White, Journ. Voy. New South Wales, p. 257, 1790.

Sylvia pusilla Latham, Suppl. Index Ornith., p. LVI., 1801.

Dwarf Warbler Latham, Gen. Synops. Suppl. II., p. 251, 1801.

Malurus maculatus Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XX., p. 215, May 30, 1818 : "Nouvelle Hollande" = New South Wales, cf. Hellmayr, Nov. Zool., Vol. XXIII., p. 105, 1916.

Acanthiza pusilla Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 227 note, 1827 ; Gould, Birds Austr., pt. xxviii. (Vol. III., pl. 53), Sept. 1st, 1847 ; *id.*, Handb. Birds Austr., Vol. I., p. 364, 1865 ; Ramsay, Proc. Zool. Soc. (Lond.), 1866, p. 574 ; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 294, 1883 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 25, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 230, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 268, 1904 ; Mathews, Handl. Birds Austral., p. 74, 1908 ; Chandler, Emu, Vol. IX., p. 248, 1910 (Vic.) ; Cleland, *id.*, Vol. XI., p. 85, 1911 (Food) ; *id.*, *ib.*, Vol. XII., p. 12, 1912 (Food) ; Howe, *id.*, Vol. XVI., p. 172, 1917 (Review) ; Neil, South Austr. Orn., Vol. VI., p. 115, 1922.

Saxicola macularia Quoy and Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 199 (pref. June 29) 1830 : Western Port, Victoria.

Acanthiza diemenensis Gould, Synops. Birds Austr., pt. iv., pl. (59), April 1838 : Tasmania ; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 146, Dec. 1838 ; *id.*, Birds Austr., pt. xvii. (Vol. III., pl. 54), Dec. 1st, 1844 ; *id.*, Handb. Birds Austr., Vol. I., p. 365, 1865 ; Ramsay, Proc. Linn. Soc., N.S.W., Vol. II., p. 185, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 295, 1883 ; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 240, 1887 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 25, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 232, 1901 ; (Legge) Emu, Vol. II., p. 113, 1902 (re *ewingi*) A. G. Campbell, *id.*, Vol. IV., p. 119, 1905 ;

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- S. A. White, *id.*, Vol. XIII., p. 58, 1913 (Flinders Island); North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 272, 1904; Mathews, Handl. Birds Austral., p. 75, 1908; Littler, Handb. Birds Tasm., p. 35, 1910.
- Acanthiza ewingii* Gould, Birds Austr., pt. xvii. (Vol. III., pl. 55), Dec. 1st, 1844: Tasmania; Legge, Papers Proc. Roy. Soc. Tasm., 1900-1, p. 91; [Anon.] Emu, Vol. II., p. 113, 1902; Legge, *id.*, Vol. III., p. 179; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 273, 1904; A. G. Campbell, Emu, Vol. IV., p. 119, 1905; Thompson, *id.*, Vol. XI., p. 40, 1911; Mathews, Handl. Birds Austral., p. 76, 1908; Littler, Handb. Birds Tasm., p. 36, 1910; Mathews, List Birds Austr., p. 217, 1913; Fletcher, Emu, Vol. XVIII., p. 98, 1918; Lord, *ib.*, Vol. XIX., p. 105, 1919.
- Acanthiza apicalis* Gould, Birds Austr., pt. xxvi. (Vol. III., pl. 57), March 1st, 1847: Swan River, West Australia; *id.*, Proc. Zool. Soc. (Lond.), 1847, p. 31, April 27; *id.*, Handb. Birds Austr., Vol. I., p. 368, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 296, 1883; Ramsay, Tabl. List Austr. Birds, p. 9, 1888; Hall, Key Birds Austr., p. 25, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 233, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 271, 1904; Mathews, Handl. Birds Austral., p. 75, 1908; Whitlock, Emu, Vol. X., p. 309, 1911 (W.A.); Wilson, *id.*, Vol. XII., p. 35, 1912 (Mallee, Vic.); S. A. White, *id.*, Vol. XX., p. 127, 1921 (W.A.); Ashby, *id.*, p. 134 (W.A.); Alexander, *id.*, p. 166 (W.A.).
- Acanthiza pyrrhopygia* Gould, Birds Austr., pt. xxviii. (Vol. III., pl. 58), Sept. 1st, 1847; [Not *Acanthiza pyrrhopygia* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 227, 1827.] Belts of the Murray, South Australia. Gould, Handb. Birds Austr., Vol. I., p. 369, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 296, 1883; Ramsay, Tab. List Austr. Birds, p. 9, 1888; Hall, Key Birds Austr., p. 25, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 234, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 275, 1904; Mathews, Handl. Birds Austral., p. 75, 1908; S. A. White, Emu, Vol. XII., p. 4, 1912, Eyre's Peninsula; Cleland, *id.*, p. 12, (Food.); Wilson, *id.*, p. 35 (Vic.); Chandler, *id.*, Vol. XIII., p. 41, 1913 (Vic.)
- Acanthiza magnirostris* A. J. Campbell, Emu, Vol. II., p. 202, April 1, 1903: King Island, Bass Straits; Not of Gould, Synops. Birds Austr., pt. iv., pl. (60), 1838; Mathews, Handl. Birds Austral., p. 75, 1908; Littler, Handb. Birds Tasmania, p. 38, 1910.
- Acanthiza rufifrons* A. J. Campbell, Emu, Vol. II., p. 203, April 1, 1903: King Island, Bass Straits; Mathews, Handl. Birds Austral., p. 76, 1908.
- Acanthiza zietzi* North, Austr. Mus. Spec. Cat. No. 1, Vol. I., pt. iv., p. 271, July 11, 1904: Kangaroo Island; Mathews, Handl. Birds Austral., p. 75, 1908.
- Acanthiza albiventris* North, Austr. Mus. Spec. Cat. No. 1, Vol. I., pt. iv., p. 276, July 11, 1904: (Dubbo) New South Wales; Jackson, Emu, Vol. XII., p. 69, 101, 1912 (Queensland); Mathews, *id.*, Vol. XVI., p. 34, 1916; H. L. White, *id.*, Vol. XVIII., p. 159, 1919, (Queensland); Cleland, *id.*, p. 280, 1919 (N.S.W.).
- Acanthiza katherina* De Vis, Ann. Queensl. Mus., No. 6, p. 43, Sept. 1905: Bellenden Ker Range, Queensland.

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- Acanthiza halmaturina* A. G. Campbell, Emu, Vol. V., p. 141, Jan. 1, 1906 : Kangaroo Island ; Campbell, *id.*, p. 196 ; Cleland, *id.*, p. 207 ; Morgan, *id.*, p. 225 ; Hall, Key Birds Austr., 2nd ed., p. 111, 1906.
- Acanthiza whitlocki* North, Victorian Naturalist, Vol. XXVI., p. 55, Sept. 9, 1909 : Lake Way, Mid-West Australia ; Campbell, Emu, Vol. IX., p. 165, 173, 1910 ; Whitlock, *id.*, p. 198 ; H. L. White, *id.*, Vol. XVIII., p. 159, 1919 ; Campbell, *id.*, 258, 1919 ; Whitlock, *id.*, Vol. XX., p. 180, 1921.
- Acanthiza archibaldi* Mathews, Nov. Zool., Vol. XVII., p. 501, Dec. 15, 1910 : new name for "*A. magnirostris* Campbell."
- Acanthiza albiventris hamiltoni* Mathews, Bull. Brit. Ornith. Club, Vol. XXVII., p. 97, May 26, 1911 : "New South Wales" in error. = Coonalpyn, South Australia ; *id.*, Emu, Vol. XI., p. 129, 1911 ; *id.*, Emu, Vol. XVI., p. 34, 1916.
- Acanthiza pusilla pusilla* Mathews, Nov. Zool., Vol. XVIII., p. 347, 1912 ; *id.*, List Birds Austr., p. 213, 1913.
- Acanthiza pusilla macularia* Mathews, Nov. Zool., Vol. XVIII., p. 347, 1912 ; *id.*, List Birds Austr., p. 213, 1913 ; Stone, Emu, Vol. XVI., p. 108, 1916 ; Belcher, Birds Geelong, p. 272, 1914.
- Acanthiza pusilla diemenensis* Mathews, Nov. Zool., Vol. XVIII., p. 347, 1912 ; *id.*, List Birds Austr., p. 214, 1913.
- Acanthiza pusilla zietzi* Mathews, Nov. Zool., Vol. XVIII., p. 347, 1912 ; *id.*, List Birds Austr., p. 214, 1913.
- Acanthiza pusilla archibaldi* Mathews, Nov. Zool., Vol. XVIII., p. 348, 1912 ; *id.*, List Birds Austr., p. 213, 1913.
- Acanthiza pusilla katherina* Mathews, Nov. Zool., Vol. XVIII., p. 348, 1912 ; *id.*, List Birds Austr., p. 215, 1913.
- Acanthiza pusilla apicalis* Mathews, Nov. Zool., Vol. XVIII., p. 348, 1912 ; *id.*, List Birds Austr., p. 214, 1913.
- Acanthiza pusilla venus* Mathews, Nov. Zool., Vol. XVIII., p. 348, Jan. 31, 1912 ; Venus Bay, South Australia ; *id.*, List Birds Austr., p. 214, 1913.
- Acanthiza pusilla whitlocki* Mathews, Nov. Zool., Vol. XVIII., p. 348, 1912 ; *id.*, List Birds Austr., p. 214, 1913 ; H. L. White, Emu, Vol. XXI., p. 164, 1922.
- Acanthiza pusilla albiventris* Mathews, Nov. Zool., Vol. XVIII., p. 348, 1912 ; *id.*, List Birds Austr., p. 213, 1913.
- Acanthiza pusilla hamiltoni* Mathews, Nov. Zool., Vol. XVIII., p. 348, 1912 ; *id.*, List Birds Austr., p. 214, 1913.
- Acanthiza tanami* Mathews, Nov. Zool., Vol. XVIII., p. 349, Jan. 31, 1912 : Tanami, Northern Territory ; *id.*, List Birds Austr., p. 215, 1913.
- Acanthiza pusilla arno* Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 44, April 2, 1912 : Arno Bay, Eyre's Peninsula, South Australia ; *id.*, List Birds Austr., p. 214, 1913.
- Acanthiza pusilla consobrina* Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 78, June 28, 1912 : Leigh's Creek, Central (South) Australia ; *id.*, List Birds Austr., p. 214, 1913.

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Acanthiza pusilla samueli Mathews, Austral Av. Rec., Vol. II., pt. 4, p. 76, Dec. 29, 1913 :
Myponga, South Australia.

Acanthiza ewingi ewingi Mathews, List Birds Austr., p. 217, 1913.

Acanthiza ewingi rufifrons, Mathews, *ib.*

Acanthiza pusilla jayi Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 98, Sept. 24, 1914 .
Jay Waterhole, MacDonnell Ranges, Central Australia.

Acanthiza albiventris albiventris Mathews, Emu, Vol. XVI., p. 34, 1916.

Acanthiza albiventris venus Mathews, *ib.*

Acanthiza albiventris hamiltoni Mathews, *ib.*

Acanthiza albiventris consobrina Mathews, *ib.* p. 35.

Acanthiza albiventris gayi (= *jayi*) Mathews, *ib.*

Acanthiza albiventris whitlocki Mathews, *ib.*

Acanthiza albiventris tanami Mathews, *ib.*

Acanthiza pusilla peroni Mathews, Bull. Brit. Ornith. Club, Vol. 39, p. 23, Nov. 30th, 1918 :
Peron Peninsula, W.A.

Acanthiza pusilla bunya Mathews, *ib.*, Vol. XL., p. 105, March 31st, 1920 : Bunya Mts.,
Queensland.

Acanthiza pusilla nullarborensis H. L. White, Emu, Vol. XXI, pt. 3, p. 164, Jan. 14th,
1922 : Zanthus, Nullarbor Plains, east of West Australia.

DISTRIBUTION. Australia generally, extreme North excepted, limit of range northward
in West appears to be Tanami, Northern Territory and limit in east Bellenden Ker
Range, North Queensland.

Adult male. General colour of the upper-surface mouse-brown including the top of the
head, hind-neck, back and wings ; inner webs of flight-quills dark brown fringed
with white ; rump and upper tail-coverts chestnut ; tail smoke-brown at the
base with a blackish broad subterminal band and smoke-grey or whitish tips to
the feathers ; fore-part of head rust-brown speckled with whitish ; sides of neck
and sides of face grey with white specklings on the latter ; chin, throat and breast
whitish with blackish centres to the feathers ; sides of body, thighs, abdomen,
and under tail-coverts dull fawn colour ; under wing-coverts, axillaries, and inner
edges of quills below whitish, remainder of quill-lining pale brown ; lower aspect
of tail blackish-brown with whitish tips to the feathers. Bill, legs and feet dark
brown. Eyes red. Total length 110 mm. ; culmen 8, wing 55, tail 46, tarsus 21.
Figured. Collected near Cobbora, New South Wales, on the 16th of May, 1914,
and is the type of *Acanthiza pusilla cobborensis* (pl. 447, middle bottom figure).

Adult male. General colour of the upper-surface mouse-brown including the top of the
head, back, upper wing-coverts, and outer aspect of wings ; outer edges of primaries
greyish-white, inner webs hair-brown fringed with white ; upper tail-coverts dull
chestnut ; tail smoke-brown, blackish subterminally and tipped with smoke-
grey and white ; rectal bristles scarcely perceptible ; the feathers on the fore-part
of the head centred with whitish which gives a scalloped appearance ; sides of face
similar ; throat and fore-neck greyish-white with dark centres to the feathers ;
breast, abdomen, sides of the body, and under tail-coverts buffy-white ; axillaries
under wing-coverts, and inner edges of quills below pale buffy-white, remainder
of quill-lining dark hair-brown ; lower aspect of tail similar to its upper-surface, but
rather paler. Total length 98 mm. ; culmen 8, wing 53, tail 42, tarsus 24. Figured.
Collected at Leigh's Creek, South Australia, on the 16th of September, 1910, and
is the type of *Acanthiza pusilla consobrina* (pl. 447, top figure).



H. Grönvold, del.

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ACANTHIZA PUSILLA.
(BROWN TIT).

BROWN TIT.

Adult male. General colour of the upper-surface mouse-brown, including the top of the head, sides of face, hind-neck, sides of neck, back, and upper wing-coverts; flight-quills blackish-brown fringed with whitish on the inner webs; upper tail-coverts smoke-brown; tail dark brown with a broad blackish subterminal band and greyish-brown tips to the feathers; fore-head and fore-part of face minutely dotted with white; throat and breast dull white with dark shaft-lines to the feathers; middle of abdomen silky-white; sides of body grey with a smoky tinge; lower flanks silky-white; under tail-coverts buffy-white; under wing-coverts and inner margins of quills below white; under-surface of flight-quills greyish-brown; lower aspect of tail blackish tipped with grey. Bill dark purple; feet and legs blackish-purple, eyes orange-red. Total length 97 mm.; culmen 8, wing 50, tail 40, tarsus 20. Figured. Collected on Peron's Peninsula, Shark's Bay, West Australia, on the 22nd of November, 1916, and is the type of *Acanthiza pusilla peroni* (pl. 447, left-hand figure.)

Adult male. General colour of the upper-surface ochreous-brown, including the top of the head, sides of face, sides of neck, back, wings and tail, becoming rust-brown on the rump and upper tail-coverts; inner webs of flight-quills dark hair-brown with whitish margins; a black subterminal band on the tail which is only indicated on the middle feathers but well pronounced on the outer ones, which have smoke-grey tips; the feathers on the forepart of the head ferruginous with narrow dark margins, which imparts a scalloped appearance; throat and breast greyish-white longitudinally marked, or speckled with black; middle of abdomen yellowish-white; sides of body smoke-brown; thighs and under tail-coverts buff; axillaries and under wing-coverts buffy white; under-surface of quills hair-brown fringed with whitish; lower aspect of tail similar to its upper-surface, but much paler. Bill horn, feet fleshy; eyes ruby. Total length 110 mm.; culmen 8, wing 52, tail 44, tarsus 22. Figured. Collected at Selby, Victoria, on the 6th of April, 1912, and is *Acanthiza pusilla macularia* (pl. 448, right-hand figure).

Adult female. General colour of the upper-surface rust-brown including the top of the head, sides of the face, sides of neck, hind-neck, back and outer aspect of the wings, becoming deep chestnut on the rump and upper tail-coverts; inner webs of flight-quills dark hair-brown narrowly fringed with white; tail bronze-brown with a subterminal band and smoke-grey or whitish tips to the feathers; fore-part of head pale ferruginous with dark narrow margins to the feathers which gives a scalloped appearance; the feathers in front, above, and below the eye speckled with whitish; throat and breast white with blackish margins to the feathers which become almost obsolete on the lower breast; middle of abdomen and vent white; flanks and under tail-coverts ochreous-buff; axillaries and under wing-coverts white like the margins of the quills below; remainder of quill lining hair-brown; lower aspect of tail similar to its upper-surface, but much paler. Bill very dark horn; feet and legs nearly black, eyes claret. Total length 110 mm.; culmen 9, wing 51, tail 47, tarsus 19. Figured. Collected at Wilson's Inlet, South-west Australia, on the 10th of November, 1910, and is *Acanthiza pusilla apicalis* (pl. 445, top figure).

Adult. General colour of the upper parts olive-brown including the top of the head, back and wings; inner webs of flight-quills blackish-brown narrowly fringed with whitish; upper tail-coverts rust-colour; tail bronze-brown with a blackish subterminal band and smoke-grey tips to the feathers; fore-part of head ferruginous with minute dark fringes to the feathers which imparts a scalloped appearance; sides of face dusky grey slightly speckled with greyish-white; sides of neck ash-grey; throat and breast greyish, the feathers slightly fringed with blackish; abdomen and under tail-coverts yellowish-white; flanks and thighs pale ochreous; axillaries and under wing-coverts white; under-surface of flight-quills hair-brown fringed with

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buffy-white ; lower aspect of tail similar to its upper-surface but much paler. Bill and throat (inside) black, feet and legs dark brown, eyes reddish-brown with paler periphery. Total length 115 mm. ; culmen 8, wing 55, tail 47, tarsus 18. Figured. Collected on the Bunya Mountain, Queensland, on the 3rd of October, 1912, and is the type of *Acanthiza pusilla bunya* (pl. 448, middle left-hand figure).

Adult female. General colour of the upper-parts, including the top of the head, sides of face and sides of neck, hind-neck, back, wings, and tail rust-brown, becoming deeper in colour on the rump and upper tail-coverts ; inner webs of flight-quills hair-brown with whitish margins ; a broad black subterminal band on the tail, which is much less pronounced on the middle feathers ; fore-part of head pale ferruginous with dark narrow margins to the feathers, which give a scalloped appearance ; throat and breast greyish-white streaked with blackish ; middle of upper abdomen yellowish-white ; sides of body, thighs, and under tail-coverts pale ochreous-brown ; axillaries, under wing-coverts, and inner margins of quills below buffy-white ; remainder of quill-lining hair-brown ; lower aspect of tail similar to its upper-surface, but much paler. Bill blackish-brown, feet and legs dark brown, eyes red. Total length 99 mm. ; culmen 8, wing 51, tail 43, tarsus 20. Figured. Collected at Myponga, South Australia, on the 20th of March, 1912, and is the type of *Acanthiza pusilla samueli* (pl. 448, bottom left-hand figure).

Adult female. General colour above mouse-grey including the top of the head, sides of face, hind-neck, sides of neck, back and wings ; inner webs of flight-quills hair-brown with whitish margins ; upper tail-coverts rust-colour ; tail bronze-brown with a blackish subterminal band and smoke-grey or whitish tips to the feathers ; fore-part of head whitish with dark margins to the feathers, which gives a scaled appearance ; throat and breast white with dark edgings to the feathers ; abdomen, sides of body, and under tail-coverts pale isabelline ; axillaries and under wing-coverts whitish ; under surface of flight-quills hair-brown with buffy-white margins ; lower aspect of tail similar to its upper-surface, but paler. Bill brown, feet and legs brown ; eyes light red. Total length 106 mm. ; culmen 8, wing 50, tail 42, tarsus 18. Figured. Collected at Tanami Gold Fields, Northern Territory, on the 4th of March, 1910, and is the type of *Acanthiza tanami* (pl. 447, right-hand figure).

Adult male. Upper-surface uniform olive-brown, including the head, hind-neck, back, and wings ; primary and secondary-quills dark brown with whitish edges on the outer webs ; upper tail-coverts inclining to chestnut-brown ; tail-feathers olive brown with a broad subterminal black bar except the middle ones, which have only a dark shaft-streak towards the tips ; fore-head chestnut-brown with pale bronzy edges to the feathers which gives a scalloped appearance ; cheeks dull white with minute blackish dots ; the feathers of the chin, throat, and breast are dark at the base with whitish lanceolate tips fringed with black which impart a streaked appearance ; sides of breast olive, becoming ochreous on the lower flanks ; middle of abdomen and under tail-coverts ochreous-white ; under wing-coverts white. Total length 103 mm. ; culmen 12, wing 52, tail 47, tarsus 23. Collected on Kangaroo Island in October 1905 and is *Acanthiza pusilla zietzi*.

Adult male. Upper-surface olive-brown, including the head, wings, and back ; upper tail-coverts pale chestnut ; tail olive-brown with a dark brown subapical band and ash-colour tip ; quills pale brown with paler outer edges ; fore-head and ear-coverts ochreous-brown, with pale edges to the feathers which gives a scalloped appearance ; the feathers of the throat, fore-neck and breast, dark slate-colour at the base and whitish at the tips fringed with black, giving a more or less streaked appearance ; middle of abdomen and under tail-coverts yellowish-white ; sides of body, flanks, and thighs tinged with buffish ; under wing-coverts white. Total

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length 108 mm. ; culmen 16, wing 51, tail 41, tarsus 18. This is the type of *Acanthiza archibaldi* Mathews from King Island.

The sexes of all the above are alike.

Young female. Differs from the adult male in being more rufous-brown above, the upper tail-coverts brighter chestnut, the light pattern at the tip of the tail darker and inclining to pale brown, throat and breast darker, flanks and under tail-coverts inclining to ochreous. Total length 105 mm. ; culmen 14, wing 51, tail 41, tarsus 19. Collected on King Island.

Nest. Partly dome-shaped, with opening near the top. Situated in a small tree. Composed of soft dead grass and lined with feathers. Outside measurements 6 inches deep by 3 wide. Opening about $1\frac{1}{4}$ inches wide (East Australia).

Nest. Oval-shaped with side opening. Placed between twigs. Composed of grass matted together with cocoons on the outside and lined with feathers. Outside measurements 4 inches deep by about 3 wide. Opening about 1 inch wide (West Australia.)

Nest. Oval with opening placed near the top. Situated in the long grass or in the Bottle-brush tree. Composed of dried grass and the deep egg cavity warmly lined with feathers. Outside measurements 6 inches deep by about 3 wide. (Tasmania, *diemenensis*.)

Nest. Pear-shaped with entrance near the top. Composed of dried grass. Lined with thistledown and a few feathers. Dimensions outside 8 inches long by 3 wide. (Tasmania.)

Adult male. General colour of the upper-surface ochreous-brown including the head, back, wings and tail ; fore-part of the head rather paler and inclining to rufous and having dark edges to the feathers which imparts a scalloped appearance ; rictal bristles black ; primary-coverts blackish ; inner portions of some of the flight-quills greyish-white ; outer margins of some of the primaries paler than the back like the base of the tail, which has a blackish subterminal band and bronze-grey tips to the feathers ; sides of face dusky grey ; throat greyish-white with dark edges and dusky bases to the feathers ; middle of abdomen and under tail-coverts yellowish-white with blackish bases to the feathers ; sides of body and thighs olive with blackish bases to the feathers ; axillaries, under wing-coverts and inner edges of quills below dusky white ; remainder of quill lining dark brown ; lower aspect of tail grey with a dark subterminal band. Total length 105 mm. ; culmen 9, wing 56, tail 45, tarsus 22. Figured on pl. 451, bottom figure. Collected at Hogan's Track, Tasmania, on the 13th of September, 1909 (= *A. ewingi* or *A. dovei* nom. n.).

Adult female. From the same locality similar to the adult male.

Nest. Dome-shaped with side entrance, composed of bark and covered with green moss, lined with feathers and other soft material. Dimension $4\frac{1}{2}$ inches by 3.

Eggs. Clutch three, white with a zone near the larger end of purplish-red, 17 mm. by 14.

Breeding-season. October to December. (July to October, West Australia.)

THE whole of White's account reads: "Brown Warbler, pale beneath, with a band of brown towards the tip of the tail. This little bird is about the same size with the Superb Warbler, and has evidently some affinity with that species, but (exclusive of the difference in colour) the tail is not in the least cuneated, but even at the end."

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Gould's account under the name *A. pusilla* reads: "The present bird is very generally dispersed over New South Wales, where it inhabits the brushes, thickets and gardens. It is most nearly allied to the *A. diemenensis*, but may be distinguished from that species by its more diminutive size, by its much shorter bill, and smaller tail. It is an active prying little bird and spends much of its time amid the smaller leafy branches of the trees, from among which it collects its insect food; the tail is generally carried above the line of the body."

Of *A. diemenensis* he wrote: "I believe this species to be peculiar to Tasmania, over the whole of which country it is rather numerously dispersed, and where it inhabits forests and open woodlands, but evinces a preference to low and shrub-like trees rather than to those of a higher growth. It also frequents the gardens and shrubberies of the colonists; it is consequently one of the commonest and one of the best known birds of the island. Active and sprightly in its actions, it pries about the foliage with the most scrutinizing care in search of insects and their larvæ, which constitute its sole food. It frequently utters a rather loud harsh note, which is sometimes changed for a more full and clear strain; still its vocal powers are by no means conspicuous. It has a much more lengthened bill, and is altogether a larger bird than the *Acanthiza pusilla*, whose habitat seems restricted to the south-eastern portion of the Australian continent. The plumage of the sexes is alike."

As a synonym of *A. diemenensis*, with doubt but without explanation, he placed in his Handbook *A. ewingi* which he had figured as a distinct species in his *Birds of Australia*.

Gould differentiated as a new species *Acanthiza pyrrhopygia* writing: "This species differs from the *Acanthiza diemenensis*, *pusilla*, and *apicalis*, in having a shorter and more robust bill, and in the greater depth of the red colouring on the rump and upper tail-coverts; it also differs from the two former in having the tail tipped with white, in which respect it assimilates to the *A. apicalis* and *A. uropygialis*, to the former of which it is most nearly allied. I discovered this species in the Belts of the Murray, where it inhabits the small scrubby trees; upon first seeing it, I at once perceived that it was a distinct species by the red colouring of the rump, which showed very conspicuously at the distance of several yards, and also by the peculiarity of its note. In its actions it very closely assimilates to the other members of the genus, being an alert and quick little bird, carrying its tail above the level of the back, and showing the red colouring of the coverts to the greatest advantage. I succeeded in killing both sexes, and found that they exhibit no outward difference, and are only to be distinguished with certainty by dissection."

As another distinct species Gould described *A. apicalis*, observing: "This species, which is a native of Western Australia, is distinguished from those

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immediately allied to it, *A. diemenensis* and *A. pusilla*, by its large size, by its larger and rounder tail, by the broad and distinct band of black which crosses the tail-feathers near their extremities, and by their being largely tipped with white. It occurs in great abundance in the colony of Western Australia, both at Swan River and King George's Sound, and is to be met with in all wooded situations. Like the other members of the genus, it is active and sprightly in its actions, leaping about from branch to branch with its tail erect, and often repeating a note which very much resembles the syllables *Gee-wo-wut*. Its stomach is somewhat muscular, and the food consists of small insects of various kinds. It breeds in September and October. The sexes are alike in plumage but the female is somewhat smaller than the male."

Mr. Tom Carter has written: "The Broad-tailed Tit (*A. apicalis*) is widely distributed through the southern half of West Australia, and was noted at Mullewa in the Geraldton district (Mid-west) and also at Kellerberin. It is very common about Broome Hill, and is not nearly such an obstrusive species as *mastersi*, as these birds (*apicalis*) move about openly in low scrub and 'sucker' growth with tails erect, and constantly uttering a rather loud double note. The breeding season is from July to end of October. The nests are bulky for the size of the birds, and built in a low bush or other growth, usually about two feet above the ground and dome-shaped. Nesting material is coarse grass, strips of bark and wool and lined with silver- or other fine grass with a good amount of feathers. This species (and several other small birds) seems to like the bright coloured blue-green and red feathers from Parrots, and make a point of having the entrance to nest margined with bright colours. One nest found Oct. 21, 1912, had the entrance lined all round with bright green feathers. Nests average about four inches in height, three wide and aperture an inch across. Several nests were observed with white cocoons of spiders worked in material on the outside. The clutch of eggs is usually three, and Bronze Cuckoos (*Chal. plagosus*) seem rather fond of laying an egg in nests of this species. Sept. 4, 1908. Nest, 3 eggs, two feet above ground, in Marlock scrub. Oct. 28, 1903. Three eggs. Nov. 1. One egg and one of Bronze Cuckoo. Oct. 20, 1912. Nest, two small young, 18 inches above ground. The eggs and young of this species are frequently eaten by Lace Lizards (usually called Go-annas, *Varanus varius*.)"

Mr. J. W. Mellor wrote: "Although I have not been to West Australia, I have seen the western form in South Australia as it is plentiful in Eyre Peninsula, at Stokes in the centre of the Peninsula, over on the eastern shores on the Spencer's Gulf side, at Arno Bay. I have also noted it at Port Lincoln, and at Warunda Creek about thirty miles due north of the latter place."

Mr. Edwin Ashby has sent me the following important note regarding this species, which I reproduce in full: "It is not easy to write notes on the various

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racess that are included under the species name *Acanthiza pusilla* White, as they show considerable differences both in markings and in habits. I should divide them into two main groups *A. p. pusilla* I have found quite numerous in the forest country of the Blackall Ranges in Queensland, and in the Blue Mountains and Buli, New South Wales. Then again, I have found *A. p. macularia* numerous in the wooded country from the Dandenong Range to Gippsland in Victoria. In South Australia a subspecies is found numerous in similar localities throughout the Mt. Lofty ranges and Kangaroo Island and is that which has been designated *A. p. zietzi* North. The notes and habits of all these are similar so that the description of one will fully cover the three races. In the Mt. Lofty ranges this *Acanthiza* is chiefly found in the wetter parts by preference living in the dense bushes along the banks of creeks, though in winter it comes freely into the more open timbered country round Blackwood. The song is rather sweet, it has a greater range of notes than is the case with most members of this genus but its most characteristic note is a loud, rather rasping call which always impresses one as being remarkably loud for so small a bird. Its favourite nesting place is a low dense bush within a couple of feet of the ground. The next division might well be classed as the '*apicalis*' group and possibly would be better placed under that name rather than classified as subspecies of *A. pusilla*. This group is composed of the following, beginning with the Mallee bird *A. hamiltoni*, *A. arno*, *A. venus* and *A. apicalis*. These four forms have notes and calls distinct from *A. pusilla*. In South Australia *A. hamiltoni* Math. or as we used to know it *A. pyrrhopygia* Gould is chiefly a mallee bird. I have found it quite common throughout the extensive Mallee between the River Murray and the Victorian Border and beyond. Twenty-five miles north of Adelaide it is frequently met with in the Ti-Tree (*Melaleuca*) and Mallee when patches occur, and is also finding its way into the Mangroves on the low-lying land bordering the Gulf. On Eyre's Peninsula I have found it or rather the race called *arno* Math. very numerous in the Mallee. On the occasion of my visit to Venus Bay in the Great Bight the pale race called *venus* Math. was quite as common in similar situations. *A. apicalis*. During my recent visit to Western Australia in November, 1920, I noted characteristics that certainly seem to warrant separation from *A. pusilla*. The three forms referred to under this division *hamiltoni*, *arno* and *venus* are all dry-land forms and although I have collected a form of *apicalis* in the Goldfields its home seems to be in the wet parts of that State. I have found it very numerous at Albany, Ellenbrook, Yallingup and in the neighbourhood of Perth. In these localities it was common wherever there were tall bushes or low *Banksia* scrub. It gave one the impression of being a decidedly stouter bird than *A. pusilla*. The tail is exceptionally long and carried at a decided angle of elevation quite different from

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the *pusilla* of our Mt. Lofty Hills. The notes were so distinct from those of *A. pusilla* and so unfamiliar that I on more than one occasion shot a bird thinking that it was a different species. A further difference was found in the eye, which was deep yellow shading to reddish orange, whereas in *pusilla* it is I think always deep red. I am inclined to think that we are justified in giving *Acanthiza diemenensis* Gould specific rank. I have found it very numerous in all parts of Tasmania I have visited: its notes are quite distinct from those of *pusilla* though its habits are very similar. Now as to *Acanthiza ewingii* Gould, although this bird is so similar to *diemenensis* in plumage that care is required to separate them, many of its habits are very distinct. While *diemenensis* is found all over the flat open scrub country throughout Tasmania I have only met with *ewingii* in very wet localities, mostly near the summit of the Mountains. On Mt. Wellington, near Hobart, I have only found it in the zone of Tree Ferns or similar spots to that inhabited by the Pink-breasted Robin. I also have collected it in the wet ranges near Ringarooma in North-east Tasmania, and found it nesting in the gorge of the River Don near Latrobe in the North-West of the Island where its nest was placed in a bush hanging right over the swift-running water. It was strikingly different from the usual nest of *diemenensis*, being a model of care and finish. Again the notes of this bird are different from those of its near ally, *diemenensis*; only in October last (1920) while near the Springs high up Mt. Wellington I heard a loud unfamiliar note repeated several times; it was made by a bird hidden from my view in low dense bushes three or four feet in height. After a good deal of manoeuvring I at length caught sight of a little dark-coloured bird working for insects amongst the roots and stems of the thick brushwood and managed to shoot it with a snapshot. I was most surprised to find that it was *A. ewingii*. The loud distinctive cry led me to expect quite a strange bird. Undoubtedly its outward characteristics closely assimilate to those of *diemenensis* but I am persuaded that they are both good species."

Under the name *Acanthiza pyrrhopygia* Mr. Thos. P. Austin has written me from Cobbora, New South Wales, that the bird so-called is "Sparingly met with in thick scrubs, either single birds or pairs associating with small flocks of the Buff-rumped species, invariably met with feeding upon the ground, as approached they gradually work further away with short flights from bush to ground and so on until they are out of sight. This bird escaped my notice until recently and am now trying to pay more attention to them, but owing to the birds being apparently rare, and the rough scrubby class of country in which they are found, I have so far discovered very little about their habits."

Captain S. A. White's notes read: "*A. p. diemenensis* is very plentiful in some districts. I have found them in the low scrub as well as in the timbered country of Tasmania. *A. p. zietzi* is very plentiful in the low scrub in some parts

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of Kangaroo Island and the habits seem identical with those of the mainland forms. *A. p. hamiltoni* is dispersed over the whole mallee country east of the Murray River and is to be found in the middle of the summer when all the waters have dried up. *A. p. arno* was only found in the vicinity of Arno Bay and it was not over plentiful there. *A. p. consobrina* has a very wide range in the interior."

Mr. L. G. Chandler wrote me: "*A. pusilla* is thoroughly useful and insectivorous and is a perfect mimic. On Oct. 11, 1908, I found a nest of this species with young; the squeaking of the young quickly brought the parent birds on the scene. I was surprised when I heard one of the parent birds mimicking perfectly the short chipping notes of the White-shafted Fantail (*R. albiscapa*). The young had ceased squeaking, so I imitated a young bird in distress. The poor parents became violently agitated, flying within a foot or two of my head, at the same time mimicking to perfection and in repetition the notes of the following species: *Rhipidura albiscapa*, *Malurus cyaneus*, *Ptilotis leucotis*, *Artamus sordidus*, *Pachycephala pectoralis*, *Climacteris picumna*, and *Platycercus eximius*. I had my note-book in hand and took down the calls as I recognised them. Other calls were given which I could not clearly identify. It was singular that the birds did not use their ordinary calls between the other calls. The principal ones imitated were the *M. cyaneus*, *R. albiscapa* and *P. pectoralis*. Undoubtedly the calls were given to deceive me, and if possible decoy me from the nest."

Mr. F. E. Wilson has written confirming Chandler's account, and adds: "I have heard *A. pusilla* imitating the bell-like tinkle of *Pardalotus punctatus*."

Mr. F. E. Howe wrote: "Is very fond of the creeks and is very common through the district. It is an early breeder and both birds help in building nest."

Mr. Frank Littler's notes read: "The Tasmanian Tit (*A. diemenensis*) is more bulky and has a slightly larger bill than the Brown Tit of the mainland. During certain seasons of the year it congregates in medium-sized flocks and then in company seeks its food. This comprises insects of all kinds, especially flies, beetles, young caterpillars and grubs, all of which are obtained on the ground, among decaying vegetation or from under loose bark of the eucalypts. It is no uncommon sight to see this bird right out on the extreme tips of the twigs of a eucalypt, and hanging suspended back downward to the pendant leaves, picking off spiders and flies from their under-surfaces. It has a few whistle-like notes. It is agile on the wing, darting with great rapidity from tree to tree, or from bough to bough when hunting in a big eucalypt."

Mr. H. Stuart Dove some time ago wrote me: "I had the opportunity of examining three supposed skins of *ewingii* in my friends' possession, one from Russell Plains and two from Mount Arthur, all in Northern Tasmania. The distinctness, on comparison with the common *A. diemenensis*, appeared well

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marked, especially the black winglet and rufous edges to primaries, the throat and upper-chest appeared more uniform in *ewingii*, but what particularly struck me was the *finer, narrower bill* in all three specimens, that of *diemenensis* appearing coarse in comparison: we had not seen this point noted before. My friends, who are fairly familiar with the species in the scrub, say that it usually goes in pairs instead of small companies, keeps higher up in the tea tree, has a slightly different call, builds a much neater, more compact nest than *diemenensis*, and lays a bigger clutch, four or even five, the Browntail's usual being three. It usually keeps near creeks, both in feeding and building. My friends cannot distinguish the eggs except by the larger clutch."

Lord (*Emu*, Vol. XIX., p. 105, 1919) has written: "*A. ewingi*. This species appeared to take the place of the preceding one (*diemenensis*) at the higher altitudes and where the timber was denser, particularly so from the 1,500 to the 2,500 feet level."

In the *Emu*, Vol. XVI., p. 170-180, 1917, Mr. F. E. Howe reviewed the "Acanthizæ or Tit-Warblers" detailing the history of the whole group and summarizing the position as it was at that date and is a very useful essay for the purpose of reference. He did not advance any new ideas but stated: "The problem now facing Australian ornithologists, however, is the number of species that should be admitted and how best to deal with the geographical races or subspecies."

This is still true as in connection with the present species as hereafter discussed I have rearranged three or four "species" under one heading and some of the extremes are so unlike as to suggest an erroneous conclusion but with large numbers the intergradation is geographically complete and as usual in such cases at the limits of the range the forms are more alike than some of the adjacent forms. Thus Howe has written: "During September, 1911, Mr. F. E. Wilson and I collected skins of this race (*A. pusilla hamiltoni*) south of the Kow Plains, now known as Cowangie. These birds are very close indeed to *A. p. apicalis*, and one of them, an adult male, is much lighter on the upper-surface. If Mathews' subspecies *venus* and *arno* are intermediate, the differences must indeed be small." *A. p. hamiltoni* is the name for "species" *pyrrhopygia* which Howe emphasizes is only a race, while *apicalis* has previously been regarded as representing *pusilla*, not *pyrrhopygia*, in the West. Consequently Howe confirms my conclusion that *pyrrhopygia* is apparently only the interior form of the parent *pusilla*, and the western *apicalis* approximates to that. From Victoria a typical form of *pusilla* occurs, *A. p. macularia*, which is very different at first sight from the Mallee "*pyrrhopygia*" and lives within a short distance of it, and this has caused the previous recognition of "*pyrrhopygia*" as of specific rank.

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Mr. J. P. Rogers sent me a specimen from Northern Territory, writing : " This species was first seen at Split Rock and is numerous from there onward. It is a very tame bird and is the first species of *Acanthiza* I have seen in North-western Australia. Tanami seems to be on the northern edge of the Mulga area and this is the northern limit of the species." As the locality Tanami is not well-known it is worth recording that it lies 220 miles south-east by east from Hall's Creek, forty miles inside the Northern Territory. Hall's Creek is 250 miles due south of Wyndham. Recently the Royal Australasian Ornithologists' Union met at Perth and a report on the birds appeared in the *Emu*, by Captain S. A. White, who simply recorded : " A very common bird met with in almost every locality—sometimes high up in the forest trees, at others near the ground." Simultaneously Mr. E. Ashby visited Geraldton and reported : " *A. apicalis*. Numerous at Claremont. Although the examination of a cabinet specimen might lead one to treat this bird as a subspecies of *A. pusilla*, the observation of its habits in the bush inclines me to give it full specific rank. Its notes are quite distinct from those of *A. pusilla* ; its tail is decidedly longer ; it carries its tail distinctly elevated—not erect or even at an angle, but still with a distinct elevation, so different from *A. pusilla*. In the specimen examined the eye was yellow, with a tinge of orange, and not decidedly red, as in *A. pusilla*." At the same time Alexander published a list of the Birds of the Swan River District and included " *A. apicalis*. Resident. An abundant species throughout the district. [The late H. E. Hill recorded *A. pyrrhopygia* as occurring at Guildford, but presumably the record should apply to this species]."

Previously F. E. Wilson had recorded the Victorian Mallee bird under the name *A. apicalis* ? writing : " The Mallee specimens all had bright red irides, while *A. pusilla* always has rich brown."

Such contradictory statements show the confusion existent.

This little species, the first to be named, is the most variable geographically, so that its technical history is extensive and also somewhat complex. I will review the names proposed and then the specimens, and collate other workers' views in my attempt to elucidate the facts regarding the species and subspecies hereafter associated.

The species was first figured by White under the name *Motacilla pusilla* from Port Jackson, New South Wales. Of course such a novelty could not have been overlooked by the early French collectors and, consequently, we find that Vieillot in 1818 described *Malurus maculatus*, but owing to the confusion of the collections through the deaths of the voyageurs the locality ascribed was only Nouvelle Hollande which proves to be New South Wales. Quoy and Gaimard later secured specimens, but these were obtained at Western Port, Victoria, and were described as new under the name *Saxicola macularia*.

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When Gould began his memorable investigations into the Australian Avifauna he described *Acanthiza diemenensis* from Tasmania. After he returned from Australia he added *Acanthiza ewingii* and *Acanthiza pyrrhopygia*, the former from Tasmania also, the latter from the Belts of the Murray, South Australia, and also named the West Australian bird *Acanthiza apicalis*. As early as 1888 Ramsay noted: "It is not improbable that *Acanthiza pusilla* Lath., *Acanthiza apicalis* Gould and *Acanthiza diemenensis* Gould, are all one and the same species, or mere local varieties." He admitted *Acanthiza pyrrhopygia* as a valid species without discussion, though this had been doubtfully admitted by Sharpe in the *Catalogue of the Birds in the British Museum*, Vol. 7, p. 296. Gould, in his *Handbook*, had synonymised his own *Acanthiza ewingi* with the prior *Acanthiza diemenensis*, and this had been accepted by the workers named. Consequently up to 1903 four species were commonly accepted by Australians, e.g., Hall, Campbell, viz., *Acanthiza pusilla*, *Acanthiza diemenensis*, *Acanthiza apicalis* and *Acanthiza pyrrhopygia*.

It will be as well to give Gould's idea of his own species, thus : “ *Acanthiza pusilla* is most nearly allied to the *Acanthiza diemenensis*, but may be distinguished from that species by its more diminutive size, by its much shorter bill, and smaller tail,” and observed “ *Acanthiza diemenensis* has a much more lengthened bill, and is altogether a larger bird than the *Acanthiza pusilla*.” “ *Acanthiza apicalis* is distinguished from those immediately allied to it, *Acanthiza diemenensis* and *Acanthiza pusilla*, by its large size, by its larger and rounder tail, by the broad and distinct band of black which crosses the tail-feathers near their extremities, and by their being largely tipped with white.” “ *Acanthiza pyrrhopygia* differs from the *Acanthiza diemenensis*, *pusilla* and *apicalis*, in having a shorter and more robust bill, and in the greater depth of the red colouring on the rump and upper tail-coverts ; it also differs from the two former in having the tail tipped with white, in which respect it assimilates to *Acanthiza apicalis*, to which it is most nearly allied.”

Gould also gives some measurements which, as usual, are practically valueless, as they disagree with his remarks as well as with actual exact measurement taken, thus :

Acanthiza pusilla Not given.

Acanthiza diemenensis Total length 4 inches; bill $\frac{9}{16}$: wing $2\frac{1}{4}$: tail 2: tarsi $\frac{3}{4}$

<i>Acanthiza apicalis</i>	4	$\frac{1}{2}$	2	2	$\frac{7}{8}$
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<i>Acanthiza pyrrhopygia</i>	4	$\frac{1}{2}$	2	$1\frac{3}{4}$	$\frac{3}{4}$
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As above noted, *Acanthiza ewingi* was regarded as a synonym of the prior *Acanthiza diemenensis*, and was consequently disregarded by later followers of Gould's work until 1903, when it was re-instated and has received recognition as a distinct species which it is not as hereafter shown. It seems possible that

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this species shows more local variation than almost any other bird, but as yet individual, sexual and seasonal changes have not been accurately determined and, consequently, all work must be more or less tentative, being dependent upon the material studied. I may therefore here note that I have criticised a FEW HUNDREDS of birds in the preparation of this account.

In 1903, A. J. Campbell described *Acanthiza magnirostris*: "Length 4.25; culmen .45, wing 2.0, tail 1.6, tarsus .7 has more of the black and white mottled under-surface than *Acanthiza diemenensis*, and thus more resembles *Acanthiza pusilla* in this respect, but may be easily separated from both these birds by the great size of its bill. Four specimens (two being young) of the new species were collected by Mr. A. G. Campbell on King Island" who "also brought under my notice another Tit, of which unfortunately he was only able to procure a single specimen—an adult, however. It differs from the three species of Tits before mentioned by its more slender tarsi and wings, but conspicuously by the absence of the light crescent-shaped marks on the brownish (rufous-brown) feathers of the forehead, and by the white feathers of the cheeks, chest, etc., having the centre only black and not also edged with that colour as in the other species. Length 4.0; culmen .3, wing 2.1, tail 1.6, tarsus .85. By this diagnosis I strongly suspect the stranger to be a re-discovery of Gould's long-lost *Acanthiza ewingii*. If not, and pending the receipt of more material, I venture to provisionally name the bird *Acanthiza rufifrons*, or the King Island Tit."

A. G. Campbell's notes read: "*Acanthizæ* (Tits). One bird shot on the Pass River coincides in every particular with the description of *Acanthiza ewingii* of Gould, which was afterwards merged by that naturalist, presumably for want of further material, with *Acanthiza diemenensis*. At the same time attention was drawn to its being the slenderer bird, with more brown at the base of the primaries. A second *Acanthiza*, which inhabits more the shorter scrub of King Island, away from the water-courses, proves to be a species quite distinct from any known; a description of it is given in another part of this issue under the name of *Acanthiza magnirostris*."

Before proceeding further, note the discrepancy again between the measurements here given and those by Gould, as here a bird with a culmen .45 is stated to have a larger bill than Gould's one with $\frac{9}{16}$ inch.

The same year at the Congress of the Australasian Ornithologists' Union, held in Tasmania, the rediscovery of *Acanthiza ewingii* was reported, and Colonel Legge wrote up the details pointing out the principal characteristics of the latter as "the rufescent forehead, the greater length of tarsus, and the dark "*winglet*" (at point of wing). To these may well be added, as a marked feature, the greater length of tail. Minor differences are darker upper-surface

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in *ewingi*, darker throat, the dusky bases of the feather showing more conspicuously than in the common species, the *fulvous* edgings of the primaries, and the darker abdomen. The measurements of two specimens, one of *ewingi* and one of *diemenensis*, from the same district (New Norfolk) are: *Acanthiza ewingi*: wing 1.95, tail 1.7, tarsus 0.95. *Acanthiza diemenensis*: wing 1.93, tail 1.59, tarsus 0.75.

The species has recently been procured by Mr. A. G. Campbell on King Island. An examination of the specimen from that island and one from Mt. Wellington reveals the same characteristics as noted here, and the extra length in tail and tarsus of the same. The King Island specimen is slightly paler on the forehead than the examples from the mainland, and the light tip and dark subterminal bar on the tail slightly more pronounced; but this may be an individual characteristic.

Then of *Acanthiza magnirostris* he added: "This is a well-marked insular form. Besides having the bill stouter and longer than in *Acanthiza diemenensis*, the coloration of the under-surface is darker than in that species. The wing is likewise $\frac{1}{8}$ of an inch longer, and the tarsus stouter."

Simultaneously North in the *Austr. Mus. Spec. Cat. No. 1., Vol. I.*, admitted *Acanthiza ewingii* as a valid species, writing: "has a distinctly longer tail and tarsus, darker upper-surface and throat; abdomen and flanks dull or dusky greenish-olive, of which the latter parts are pale fulvous in *Acanthiza diemenensis*. The forehead too is light rufous and has not the scaled appearance of its ally; the primary-coverts and spurious wing are blackish and the basal portion of the outer webs of most of the primaries are light rufescent-olive; is found through the humid mountain ranges of Tasmania."

At the same time he described two new species, one from Dubbo, New South Wales, separated from the South Australian *pyrrhopygia* on account of the white under tail-coverts, etc., under the name *Acanthiza albiventris*, the other from Kangaroo Island as *Acanthiza zietzi* on account of its greyer darker upper-surface and darker under-surface, etc., as compared with *Acanthiza pusilla*.

The next year De Vis described as a new species the Bellenden Ker bird, as *Acanthiza katherina*.

Overlooking North's description of the Kangaroo Island form, A. G. Campbell named the bird *Acanthiza halmaturina*, writing: "There is a constant difference between the island form and that of the mainland. The mantle is blackish, and not brownish-olive. The legs are black, and not brownish-black. The throat markings are heavier, while the forehead feathers at their bases are fawn-coloured and not rufous. Indeed, though it lacks the white tips to the tail-feathers, this island form approaches nearer *Acanthiza apicalis* of Western Australia than it does to *Acanthiza pusilla* of Victoria. Its

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measurements are: Length 3·9 in.; bill ·31 in. (two specimens were ·4 in.): wing 1·9 in., tail 1·6 in., tarsus 8 in.”

In the preparation of my “Reference List” I noted the *Acanthiza magnirostris*, proposed by Campbell, had been previously used by Gould, so I named the King Island bird *Acanthiza archibaldi*. It was then observed that Gould’s *Acanthiza pyrrhopygia* was also invalid, but as I concluded that North’s *Acanthiza albiventris* was only subspecifically distinct from that I renamed Gould’s species as *Acanthiza albiventris hamiltoni*. The complete examination of the material at hand compelled me to reduce all the above-named (save *ewingii* and *rufifrons*, which were admitted on Australians’ determinations) to the rank of subspecies with the addition of a Victorian race, for which I used Quoy and Gaimard’s name, *macularia*, a South Australian form from Venus Bay, which I called *Acanthiza pusilla venus*. Differing “from *Acanthiza pusilla apicalis* in having fewer white tipped feathers on the head and a more reddish-brown rump.” Thus of *Acanthiza pusilla* I recognised eleven subspecies, ranking as such *Acanthiza whitlocki* a species just previously described by North on account of its very pallid coloration throughout. I allowed *Acanthiza ewingii* as distinct with two subspecies in agreement with Colonel Legge’s judgment. I also described as a new species a bird received from Tanami, Northern Territory, with the name *Acanthiza tanami*, writing: “Resembles *Acanthiza iredalei* in the coloration of the fore-head, but had the rump coloration of *Acanthiza pusilla hamiltoni*, with the tail-feathers as in *Acanthiza pusilla apicalis*; the throat is of the same style as that of *Acanthiza ewingii*, and the abdomen is whitish.”

A few months later Milligan “re-discovered” Quoy and Gaimard’s *Saxicola macularia*, ignoring my anticipation of his result, pointing out the differences as “the lustrous live-brown tint of the upper surface, the uniform bright umber-brown tail, and the *erectile feathers of the fore-head*. The frontal feathers alone render the bird easily recognisable, and also distinguishable from its nearest ally, *Acanthiza magnirostris* (Campbell) of King Island.”

At that time (Oct. 1912) Milligan stated he was preparing a monograph of the *Acanthizæ*, but such has not yet appeared. The present essay will, I hope, serve as a basis for such a monograph as I am putting on record all the facts, especially in view of the intricacy of the subject and the desirability of long series sexed correctly and perfectly localised.

[Since this was written Milligan has died, so we must look to some other younger Australian ornithologist for a complete Monograph of this most interesting Australian group.]

The same year I differentiated *Acanthiza pusilla arno* from Arno Bay, Eyre’s Peninsula, as being darker than *Acanthiza pusilla hamiltoni*, and especially the rump darker red, and named *Acanthiza pusilla consobrina* from Leigh’s Creek,

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Central Australia, as being much paler and having a smaller bill, viz., 11 mm." The form from Myponga, South Australia, was then named *Acanthiza pusilla samueli* as it was much darker brown above, and the vent and flanks of the same colour. Then I followed with *Acanthiza pusilla jayi* from the MacDonnell Ranges, comparing it with *Acanthiza pusilla consobrina* as being paler above and in having the thighs buff-coloured. A further consideration of the species now induced me to separate the forms into two species (still leaving *Acanthiza ewingii* as distinct), and I referred to *Acanthiza albiventris* (= *Acanthiza pyrrhopygia* Gould, not Vigors and Horsfield) the subspecies *venus*, *hamiltoni*, *consobrina* (of which I sank *jayi* as a synonym) *whitlocki* and also the species *tanami*. Since then I have added two more subspecies, *Acanthiza pusilla peroni* from the Peron Peninsula, Shark's Bay and *Acanthiza pusilla bunya* from the Bunya Mountains, Queensland, the former being separated from *Acanthiza pusilla apicalis* in "being lighter, almost grey above, and in having the flanks much lighter coloured and in not having a white spot on the inner webs of the tail-feathers, wing 50 mm., and the latter from *Acanthiza pusilla pusilla* in having the feathers on the forehead more rufous and the rump more cinnamon, and also lighter on the back."

It might be concluded that with twenty-four names available every subspecies would have been discriminated and a large number of synonyms probably to record. When a review such as this one is undertaken it is commonly found that a well-marked and well-known form has been overlooked and is nameless, and this is so in this case. I have been perplexed over two matters, the specific distinctions of Gould's *ewingii* and *pyrrhopygia*. It is difficult to recognise the former and when the matter is investigated complicating factors intervene. The latter is much more difficult as certain forms are so abundantly distinct that the association of the two seems absurd, but they merge easily in different areas that it is difficult to separate them. I am here considering them all as one species but will indicate the forms that may be separated, and then it will be seen that all the "*pyrrhopygia*" series are Central ones and all the accepted "*pusilla*" forms are coastal.

I have recorded the differences accepted by Legge and North for the species *ewingii* and these I find are individual and apparently sexual. Thus I have a pair of Tasmanian birds from Coll. Thompson secured at the same place, Mount Arthur, on the same day and labelled by the collector as the same species and these show decided differences in an unexpected manner. I have checked these with continental specimens from many localities and find similar differences among those so that the form *ewingii* cannot be considered of specific value and may only be individual, but from literature and correspondents' reports it may be a highland subspecies, thus Mr. Edwin Ashby has written me: "Why

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is not *Acanthiza ewingii* a subspecies of *Acanthiza pusilla*? Mr. Harrison of Hobart who is perhaps the person who is most familiar with this bird says, that unless you know the nest, the skins themselves cannot be separated with any confidence from *Acanthiza pusilla diemenensis*. Mr. Harrison says that this species exclusively frequents the deep fern gullies high up the mountains, while *diemenensis* is everywhere on the lower and more open forest and on the plains."

This result eliminates *rufifrons* as a subspecies of *ewingii* but would give it priority over *archibaldi* as the subspecific name of the King Island form. The differences cited by Campbell are individual, probably due both to sex and age. It seems extraordinary that after all these years so little is known as to variation in connection with this species yet there seems to be much which is variable according to locality.

Accepting Sydney, New South Wales, as the type locality of White's *Motacilla pusilla* the typical subspecies would be

Acanthiza pusilla pusilla (White)

of which *Malurus maculatus* Vieillot is an absolute synonym. The limits of its range are undetermined either to the north or to the south but working southward we have

Acanthiza pusilla macularia (Quoy & Gaimard)

of which the type locality is Western Port, Victoria. Here again the limits of the range of the subspecies are unknown. This race is distinguished by the characters already quoted from Milligan's account but I would lay no stress on the erectile nature of the head-feathers. I will next discuss

Acanthiza pusilla diemenensis Gould

and will quote A. G. Campbell's conclusions: "Besides a larger bill and shorter tarsus, this species is in colour of mantle more brown than olive, when compared with *Acanthiza pusilla* [presumably from Victoria, thence *Acanthiza pusilla macularia*], and the female is always the lighter of the sexes. Differences, however, occur in birds from different parts of Tasmania, viz.:—

Hobart	Total length	4·3	: Bill	·4	: Wing	2·18	: Tail	1·8	: Tarsus	·75
Bagdad		3·95		·4		2·1		1·7		·75
Launceston		3·9		·35		2·0		1·5		·75
<i>Acanthiza ewingii</i>										
Hobart		4·0		·32		2·15		1·8		·84
Launceston		4·0		·3		1·98		1·8		·82
King Island		4·1		·3		2·1		1·85		·8
<i>Acanthiza pusilla</i>										
Victoria		4·1		·3		2·1		1·75		·8
<i>Acanthiza magnirostris</i>										
King Island		4·2		·5		2·03		1·6		·75

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In the last-named, the light edgings to the primaries, and also the semi-circular marks on each of the forehead-feathers, are much less distinct than in other species, while in the young bird the bill is slightly shorter, the mantle is darker brown, and the throat marks more obscure than in the parent."

Here a difference in coloration between the sexes is recorded and also a plumage difference due to age. I have found the bill to vary considerably in length.

Gould in his folio *Birds of Australia* recorded *Acanthiza ewingii* Proc. Zool. Soc. (Lond.) Aug. 13th, 1844, but no note appears in that place so it may be concluded that if he showed it before the Society he afterwards withdrew it, even as he did after he published the plate and description in the *Birds of Australia*, Vol. 3, pl. 55 (pt. 17) 1844. The description reads: "The *Acanthiza ewingii* is more elegant in all its proportions than its near ally, the *Acanthiza diemenensis*, for although it is a smaller bird, its tarsi are longer and more slender. There is also a rich brown mark at the base of the primaries of *Acanthiza ewingii*, which does not occur in any other known species: the markings of the breast also are more indistinct and clouded with blue-grey, while in *Acanthiza diemenensis* this part of the plumage is lighter and more inclined to brown: tail rich brown, crossed by a broad band of black near the tip, the lateral feathers tipped with white; under-surface pale olive." No measurements are given and though it is said to be a smaller bird the figures apparently natural size appear to be larger. When Littler prepared his "Handbook" he admitted the two species and gave the history of *ewingii* but acknowledged that "the distribution has not been fully worked out, but it is known to occur round Hobart and Launceston on the way to the Lakes, and part of the West Coast." Of *Acanthiza diemenensis* he wrote: "In the northern half of the island, at least, this is very plentiful" and his measurements read:—

"*Acanthiza diemenensis* Length 100: bill 11: wing 51: tail 45: tarsus 19 mm.

<i>Acanthiza ewingii</i>	101	11	48	47	19 "
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I have examined these birds in every detail in connection with continental birds and find no stable character for separating two species, and can allow *ewingii* only as a highland form.

This would mean using the name

Acanthiza pusilla ewingii Gould

for a highland Tasmanian subspecies.

As regards the King Island bird which was separated by A. J. Campbell the name will be

Acanthiza pusilla rufifrons Campbell

as I conclude that the bird differentiated by Campbell was merely an individual aberration such as is commonly met with in this species. The description reads

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like that of a young bird. Of course, my *Acanthiza archibaldi* provided for the preoccupied *Acanthiza magnirostris* of Campbell must be regarded as a synonym.

Birds from the Victorian Mallee are referable to the "*pyrrhopygia*" series and differ appreciably from the normal Victorian form in having less rufous tips to the forehead-feathers, being nearly whitish, the paler greyish upper-coloration, the bright red rumps and the different tail-coloration, the black being extensive, instead of a well-marked bar, and the inner webs of the outer-feathers with white spots. The under-surface shows pale buffish flank coloration and pale buffish-white under tail-coverts. These may be called :

Acanthiza pusilla lingerandi subsp. nov.

Type from Lingerandi.

It may be that these will intergrade with the form I have named :

Acanthiza pusilla hamiltoni

from Coonalpyn, Ninetymile Desert, South Australia, but I have not the connecting links. The Coonalpyn birds are darker above with duller red rumps, darker flanks and pale buffish under tail-coverts. Of two birds collected together by Dr. Cleland on the same day, time and place, one labelled female is paler than the one sexed male, has a very much shorter bill, shorter wing tail and tarsus. With these may be associated the South Australian birds from Mannum, Tailem Bend, Crystal Brook, etc., which also vary in coloration, length of wing, bill, etc. The differences in the subspecies are marked in series but individuals could be picked out to represent different species such as *ewingii*, *pyrrhopygia*, *rufifrons*, etc. Of this form *Acanthiza pyrrhopygia* Gould (not V. & H.) is a synonym.

The southern New South Wales interior form is :

Acanthiza pusilla albiventris North.

Type from Dubbo, New South Wales.

North distinctly states that all the birds from New South Wales (of the *pyrrhopygia* style) compared with those from South Australia are of larger size, rufous chestnut upper tail-coverts, lighter under-surface with only a slight tinge of fulvous and white under tail-coverts. I do not know the range of this form as to the South, in Victoria, as above noted, a different bird occurs, and I also distinguish another race in the northern part of Western New South Wales.

From the Fleurieu Peninsula I have named :

Acanthiza pusilla samueli

the type from Myponga. This is the most distinct form, having the tail coloured as in the typical forms with no white tips, the fore-head rufous tipped, the upper coloration very dark and the flanks and under tail-coverts deep brown.

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Nearest to this is :

Acanthiza pusilla zietzi North

from Kangaroo Island, which however is easily distinguished by the dark grey upper coloration, the rump scarcely differentiated from the back, the more earthy, less ruddy, brown flanks and under tail-coverts. The tail is typical *pusilla*-like and the fore-head is rufous tipped but varying to whitish. The immature shows the rufous tipping more vividly. The same variation in size is noted, and also the sexual variation. Of this *Acanthiza halmaturina* Campbell is a synonym. The other South Australian forms are more difficult as I have distinguished :

Acanthiza pusilla venus

from Venus Bay, Western shore of South Australia, and also :

Acanthiza pusilla arno

from Arno Bay, Eyre's Peninsula, South Australia.

When topotypes are examined these appear to represent two valid subspecies, the latter being comparatively a dark form recalling the *pusilla* type, but with indistinct white tips to the tail-feathers, so that it was determined as *apicalis* by such ornithologists as Mellor and Ashby. It certainly recalls some West Australian forms but is very different from typical *apicalis* from Perth. The former is a much greyer bird with a broader band on the tail and more tipping and I recently associated it with the "*pyrrhopygia*" series. It is difficult to understand these forms as they may be valid subspecies, but their distribution is indefinite.

I have specimens from Lake Dundas, West Australia, which seems to represent still another race, being darker than the preceding and the succeeding with the tail more of the "*pyrrhopygia*" style, which I name

Acanthiza pusilla dundasi subsp. n.

Gould separated the West Australian bird as a distinct species but it can only be regarded as a subspecies as :

Acanthiza pusilla apicalis Gould.

The type locality will be Swan River and it is curious that North noted that the birds from King George's Sound differed. Before seeing North's note recently I had separated these as being a well-marked subspecies and the particulars given by North are confirmed, I therefore name :

Acanthiza pusilla northi subsp. nov.

the type from Wilson's Inlet, South-West Australia.

These differ at sight from the preceding in being darker above and below and in almost lacking the white tipping to the tail-feathers. Variation is noted in the series in depth of coloration, size of bill etc. which is not definable according to sex. Many birds are marked as immature males and females and these

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also show individual variation. The nestling is greyer and the streaking on the fore-head and cheeks as also on the breast is less marked.

The interior bird which will be called :

Acanthiza pusilla whitlocki North

The type from Lake Way, Mid-West Australia is a very pallid form, the upper coloration being pale grey, no brown shade at all, the rump very pale buffish, the tail with distinct white tips, and the abdomen and flanks almost pure white.

H. L. White has just recently written : "I have classed this *Acanthiza* in the *pusilla* series, and it most resembles *apicalis*, of which *whitlocki* appears a lighter phase. The bird of the Nullarbor is still lighter coloured, having the upper-surface greyish-olive except the coverts, which are wood-brown, while the scales on the forehead are nearly white, thus differing in this respect from all other *Acanthizæ* in the "H. L. White Collection." With the approval of ornithologists I think this little Nullarbor bird might be known in the vernacular as the "White-scaled Tit" or

Acanthiza pusilla nullarborensis.

There are four skins from Zanthus and Naretha."

I have named the Peron Peninsula form :

Acanthiza pusilla peroni

and it is much paler than typical *Acanthiza pusilla apicalis* but is not so pale as the preceding form. Specimens from Geraldton may for the present be classed with the Perth birds, but may easily represent another subspecies as there are so many variations, which seem geographically fixed, round the coast. The interior birds are not so easily separable but I admit

Acanthiza pusilla tanami

from Tanami, West Northern Territory, a puzzling form which I at first regarded as a distinct species, the characters have been given.

The Central Australian birds as collected by Captain S. A. White may represent more than one subspecies but I here only recognise one :

Acanthiza pusilla consobrina

as ranging through the interior from Leigh's Creek to the McDonnell Ranges and I am inclined to class with them the Gawler Range birds for the present, but later when more material is collected these may be separable. All are darker than the preceding *Acanthiza pusilla whitlocki* but are similarly grey above, and referable to the *pyrrhopygia* series. Of this *Acanthiza pusilla jayi* Mathews may be a synonym.

An overlooked subspecies which must be named is :

Acanthiza pusilla cobborensis subsp. nov.

from Cobbora, New South Wales.

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The specimens received from Mr. T. P. Austin to be criticised as not conforming to North's *albiventris* are decidedly distinct as they have pale fulvous under tail-coverts and fulvous flanks while the rump coloration and general upper coloration is brighter grey.

This leaves only the two Queensland subspecies to be dealt with but it is more than probable that several subspecies can be recognised in that territory.

The two already distinguished are :

Acanthiza pusilla katherina De Vis

from the Bellenden Ker Range, North Queensland and :

Acanthiza pusilla bunya Mathews

from the Bunya Mountains, South Queensland.

These agree in their lack of noticeable throat striping and their paler yellowish-buff flank coloration, their upper coloration as well as that of the tail resembling that of *Acanthiza pusilla pusilla*. The Queensland lowland birds examined have been too few to determine subspecies on but they are somewhat intermediate between these and the typical series.

As noted above I now indicate the forms which agree in detail better with *Acanthiza pusilla* than with *Acanthiza pyrrhopygia* as also the birds certainly agreeable with the latter type :

Thus

Acanthiza pusilla pusilla (White).

New South Wales.

Fig. *Acanthiza pusilla macularia* (Quoy & Gaimard).

Victoria (Coastal).

Acanthiza pusilla diemenensis Gould.

Tasmania (Lowlands).

Descr. *Acanthiza pusilla ewingii* Gould.

Tasmania (Highlands).

Descr. *Acanthiza pusilla rufifrons* Campbell.

King Island.

Fig. *Acanthiza pusilla samueli* Mathews.

South Australia, Fleurieu Peninsula.

Descr. *Acanthiza pusilla zietzi* North.

Kangaroo Island.

and

Fig. *Acanthiza pusilla cobborensis* Mathews.

Cobbora, New South Wales.

Acanthiza pusilla albiventris North.

Dubbo, New South Wales.

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Acanthiza pusilla lingerandi Mathews.

Lingerandi, Victoria.

Acanthiza pusilla hamiltoni Mathews.

Coonalpyn, South Australia.

Fig. *Acanthiza pusilla consobrina* Mathews.

Leigh's Creek, Central Australia.

Acanthiza pusilla whitlocki North.

Lake Way, West Australia.

Fig. *Acanthiza pusilla tanami* Mathews.

Tanami, Central North Territory.

Acanthiza pusilla nullarborensis White.

East of West Australia.

while

Acanthiza pusilla arno Mathews.

Eyre's Peninsula, South Australia.

Acanthiza pusilla venus Mathews.

Venus Bay, South Australia.

Acanthiza pusilla northi Mathews.

Wilson's Inlet, West Australia.

Fig. *Acanthiza pusilla apicalis* Gould.

Perth, West Australia.

Fig. *Acanthiza pusilla peroni* Mathews.

Peron Peninsula, West Australia.

Acanthiza pusilla dundasi Mathews.

Lake Dundas, West Australia.

are nearer the former but vary towards the latter

and

Fig. *Acanthiza pusilla bunya* Mathews.

South Queensland.

Acanthiza pusilla katherina De Vis.

North Queensland.

are another variation from the first-named.

From the above it is suggested that we see here the process of the formation of species and that in more generations we should have three or four distinct representative species each with their own range and defined characters, whereas now the definition is indistinct, as an immature of the "*apicalis*" group is very like a mature of the "*pusilla*" group in the peculiar characters of the group showing the evolution of the form.



H. Grönvold, del.

Witherby & C^o

ACANTHIZA NANA.
(LITTLE TIT).

ACANTHIZA INORNATA.
(PLAIN-COLOURED TIT).

ACANTHIZA NANA.

LITTLE TIT.

(PLATE 449, two top figures).

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Acanthiza nana mathewsi Hartert, Bull. Brit. Ornith. Club, Vol. XXV., p. 82, March 31, 1910: Springvale, Victoria; Emu, Vol. X., p. 78, 1910; Mathews, Nov. Zool., Vol. XVIII., p. 347, 1912; *id.*, List Birds Austr., p. 215, 1913; Belcher, Birds Geelong, p. 274, 1914.

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Acanthiza pygmea Milligan, Emu, Vol. XII., pt. 3, p. 167, Jan. 1, 1913: Mallee, Victoria; Chandler, *id.*, Vol. XIII., p. 40, 1913; H. L. White, *id.*, Vol. XVI., p. 160, 1917.

Acanthiza nana pygmea Mathews, List Birds Austr., p. 215, 1913.

Acanthiza nana dorotheæ Mathews, Emu, Vol. XIV., pt. 1, p. 60, July 1, 1914: Lithgow, New South Wales; *id.*, Austral Av. Rec., Vol. II., p. 98, Sept. 24, 1914.

Acanthiza nana dawsoniana, H. L. White, Emu, Vol. XVIII., pt. 2, p. 122, Oct. 1918: Dawson River, Central Queensland.

Acanthiza nana clelandi Mathews, Bull. Brit. Ornith. Club, Vol. XL., p. 106, March 31, 1920: Bunya Mts., South Queensland.

Acanthiza nana burtoni Mathews, *ib.*, p. 121, April 30, 1920. New name for preceding. Not—

A. lineata clelandi Mathews, Nov. Zool., Vol. XVIII., p. 349, 1912.

DISTRIBUTION. Eastern Australia from South Australia, Victoria through New South Wales to the Dawson River, Queensland.

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Adult male. General colour above including the top of the head, back, wings, and tail olive-green; bastard-wing, greater coverts, and primary-coverts dark brown with pale edges to the feathers; flight-quills blackish-brown slightly fringed with citron-yellow on the outer webs and margined with white on the inner ones; the apical portion of the tail has a greyish tinge and a broad blackish subterminal band; base of fore-head and sides of face rather paler than the top of the head with pale shaft-lines to the feathers on the latter; chin and throat pale buff; breast, abdomen, sides of body, thighs, and under tail-coverts yellow; axillaries, and under wing-coverts sulphur-yellow; under-surface of flight-quills dark hair-brown with whitish edges; lower aspect of tail dark brown with pale grey tips to the feathers. Bill and feet black, lower mandible with base pallid. Eyes coffee-brown. Total length 85 mm.; culmen 8, wing 50, tail 35, tarsus 17. Figured. Collected on the Bunya Mountains, Queensland, on the 6th of October, 1919, and is the type of *A. n. burtoni*.

Adult female. From the same locality, similar to the adult male.

Adult male. General colour of the upper-surface olive-green, including the top of the head, back, upper tail-coverts, scapulars, and upper wing-coverts; bastard-wing and primary-coverts dark brown more or less margined with olive-green; flight-quills blackish-brown edged with olive-green on the outer webs and with white on the inner ones; base of tail similar to the back with a blackish-brown subterminal band and greyish-brown tips to the feathers; base of fore-head, base of lores, and feathers above the eye whitish with black hair-like tips to the feathers, like those in front of the eye; ear-coverts dusky-brown with pale shaft-streaks to the feathers; throat and upper-breast pale buff; lower breast, abdomen, sides of body, thighs, and under tail-coverts dull pale sulphur-yellow; axillaries, under wing-coverts, and inner margins of quills below white; remainder of quill-lining dark hair-brown; lower aspect of tail dark brown with dull grey tips to the feathers. Bill and feet black, eyes brown. Total length 88 mm.; culmen 8, wing 52, tail 38, tarsus 18. Figured. Collected on Kow Plains, N.W. Victoria, on the 11th of September, 1912.

Adult female from the same locality, similar to the adult male.

Nest. Oval with a side entrance near the top. Composed outwardly of bark, grass, etc., matted together with spiders' webs and ornamented sometimes with green mosses. Dimensions $3\frac{1}{2}$ inches long by $2\frac{1}{2}$ wide.

Eggs. Clutch, three or four. Whitish, freckled with reddish-brown and lavender, especially on the larger end. 16–17 mm. by 11–12.

“Typically the eggs of this species may be distinguished from those of any other of the genus by the darker colour and larger size of the markings.” (North.)

Breeding-season. August to December.

THIS species was apparently discovered by Mr. Caley, as when Vigors and Horsfield described it from the collection of Australian birds in the Linnean Society, they wrote: “We are informed by Mr. Caley that these birds were found in the *green wattle trees* about his house in great numbers.”

Gould's notes read: “This little bird, which is very generally distributed over the colonies of New South Wales and South Australia, frequents the extremities of the branches of various trees, without, so far as I could observe, evincing a partiality for any particular kind; the *Casuarinæ* on the banks of the creeks,

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the *Eucalypti* of the plains, and the belts of *Banksiæ* being equally resorted to by it. Minute insects constitute its sole food, and in the capture of these it exhibited many lively and varied actions, which strongly reminded me of those of the *Regulus cristatus* of England."

Mr. T. P. Austin has written me from Cobbora, New South Wales: "By no means numerous anywhere in this district, but they are sparingly dispersed through the scrubby country, mostly resorting to the higher branches of the larger trees, seldom observed in the bushes beneath or upon the ground. Even when nesting they often associate in small communities of about half a dozen birds. The nests somewhat resemble a small round ball of green moss, usually placed in the topmost branches of a pine or other small-leaved tree; they are sometimes warmly lined with feathers and fur, others having very little lining, if any. The birds are extremely jealous about their nests, much resenting the approach of an intruder: all I have found by seeing the birds building have been deserted before an egg was laid, and they make a great fuss if the tree containing their nest is climbed while they have young. Although I have found a fair number of their nests, I have never yet examined one containing eggs."

Mr. E. Ashby's notes read: "In South Australia I have met with the subsp. *mathewsi* Hart. mostly in Native Pine (*Calitris*) country. In the forests of this tree to the east of the River Murray it is very numerous, also in similar situations on the foothills on the east side of the Mount Lofty Ranges, in the Pine Scrub near Port Adelaide and in the Peppermint (*Eucalyptus odorata*) scrub about sixty miles north of Adelaide. It is evident that its habitat is always in the drier country with a rainfall of approximately 15 in. or under. It seems to have no loud call comparable to that of *A. pusilla* and is a quiet bird. The *Calitris* scrub extends on the sand ridges right from the River Murray east across the Victorian Border in more or less disconnected woods bordered with Mallee. The continuation of this scrub right through well into the Mallee of Victoria suggests that *A. pygmea* of Milligan may be the South Australian race *mathewsi* as one would hardly expect a second species to be specialised in what is really the same belt of scrub."

Mr. J. W. Mellor has written: "This little Tit I have noted in South Australia and also in New South Wales. I collected specimens, both young and old, at the Tuggera Lakes, New South Wales, some years ago: they were in country bordering these shallow lakes, but in South Australia I have observed it in hilly country along the ranges."

Captain S. A. White states that he has "met with this bird in small parties in the tea-tree scrubs along the Coorong and it is a lively little bird, often found high up in the trees."

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Ingle, writing of South Gippsland, states : " Found only in limited numbers. It remains the whole winter, and frequents the open country studded with casuarinas and peppermint gums."

H. L. White traces the Mallee forms northward to Central Queensland, *via* Cobbora, accepting Milligan's form as distinct from Hartert's and differentiating the most northern bird.

Although Milligan gave no exact locality Chandler has written : " While having dinner one day at the dam at Skeleton Hut—a sheet of water about eight miles south-east of Kow Plains railway station—we were attracted by the strange notes of some birds in a pine tree above our heads. I secured three specimens. This bird, since described as a new subspecies by Mr. A. W. Milligan, was only observed on these occasions."

The recognition of subspecies of this little bird is of recent date, and peculiarly enough two out of the half dozen now named were first indicated by local ornithologists.

The first form to be distinguished was named by Hartert :

Acanthiza nana mathewsi.

" The upper parts are less green, rather less bright, and of a more brownish tint, and the under-surface is paler and of a more buffy-yellow, contrasting with the pale rufous-buff throat."

Victoria.

The next form was named by Milligan, who wrote :

" *Acanthiza pygmea*."

" It closely resembles *Acanthiza mathewsi* Hartert, from which it does not differ to any material extent in either the colour or pattern of its plumage. Its miniature proportions (the smallest of all the genus), however, as regards total length, bill, tarsi, tail and wings, and its very slender tarsi and very short, fine bill, at once distinguish it from *Acanthiza mathewsi*. Total length 90 mm.; wing 51, culmen 8, tarsus 17 mm. Mallee, Victoria."

I then differentiated :

Acanthiza nana dorotheæ

" Differs from *A. n. nana* in being much yellower on the under-surface and lighter above. It is also longer in the wing.

Lithgow, New South Wales."

Then H. L. White added :

Acanthiza nana dawsoniana

from the Dawson River, Central Queensland, as having " a decidedly larger and longer bill " than *A. pygmea* which it otherwise resembled in coloration. He stated that the richest specimens as regards under coloration appeared to

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be the Belltrees (Upper Hunter) birds, and that Cobbora, New South Wales, birds agreed in size and coloration with the Victorian *pygmea*, and therefore decided that name was usable for birds up to that place.

I have since named :

Acanthiza nana burtoni

from the Bunya Mountains of Queensland, noting : “ Differs from *A. n. nana* Gould, in having the under-surface much yellower, the back greener and the buff on the throat much more restricted.”

Order PASSERIFORMES.

Family SYLVIIDÆ.

No. 534.

ACANTHIZA INORNATA.

PLAIN-COLOURED TIT.

(PLATE 449, two bottom figures).

ACANTHIZA INORNATA Gould, Proc. Zool. Soc. (Lond.), 1840, p. 171, July 1841; Swan River, West Australia.

Acanthiza inornata Gould, Proc. Zool. Soc. (Lond.), 1840, p. 171, 1841; *id.*, Birds Austr., pt. xxiv. (Vol. III., pl. 59), Sept. 1st, 1846; *id.*, Handb. Birds Austr., Vol. I., p. 370, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 293, 1883; Ramsay, Tab. List Austr. Birds, p. 9, 1888; Hall, Key Birds Austr., p. 25, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 229, 1901; Milligan, Emu, Vol. II., p. 72, 1902; *id.*, *ib.*, Vol. III., p. 17, 1903; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 279, 1904; Lawson, Emu, Vol. IV., p. 134, 1905; Mathews, Handl. Birds Austral., p. 74, 1908; Orton & Sandland, Emu, Vol. XIII., p. 79, 1913; Howe, Emu, Vol. XVI., 171, 1917 (Review); Ashby, *ib.*, Vol. XX., p. 134, 1921; Le Souef, *id.*, *ib.*, p. 142; Alexander, *id.*, *ib.*, 166.

Acanthiza mastersi North, Agric. Gazette N.S.W., Vol. XII., p. 1425, November 1901: King George's Sound, West Australia; *id.*, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 278, 1904; Emu, Vol. IV., p. 147, 1905; Mathews, Handl. Birds Austral., p. 75, 1908.

Acanthiza inornata inornata Mathews, Nov. Zool., Vol. XVIII., p. 347, 1912; *id.*, List Birds Austr., p. 215, 1913.

Acanthiza inornata mastersi Mathews, Nov. Zool., Vol. XVIII., p. 347, 1912; *id.*, List Birds Austr., p. 215, 1913.

Acanthiza inornata submastersi Mathews, Austral. Av. Rec., Vol. I., pt. 2, p. 43, April 2, 1912: Stirling Ranges, South-west Australia; *id.*, List Birds Austr., p. 215, 1913.

Acanthiza inornata carnarvoni Mathews, Austral. Av. Rec., Vol. II., pt. 4, p. 76, Dec. 29, 1913: Carnarvon, Mid-west Australia.

Acanthiza inornata strellyi Mathews, *ib.*: Strelly River, Mid-west Australia.

DISTRIBUTION. Western Australia only from the Stirling Ranges to Strelly River.

PLAIN-COLOURED TIT.

Adult male. General colour of the upper-surface olive-brown, more or less tinged with grey including the top of the head, back, upper tail-coverts, scapulars, and wings; flight-quills dark brown on the inner webs with buffy-white margins; tail dark ochreous-brown with a blackish subterminal band; base of fore-head buff with dark margins to the feathers which imparts a scalloped appearance; sides of face similar but not so pronounced; throat, fore-neck and breast pale buff slightly dappled with a darker colour; abdomen, sides of the body and under tail-coverts yellowish-buff; under wing-coverts and inner edges of quills below buff; remainder of quill-lining dark hair-brown; lower aspect of tail similar to its upper-surface. Bill dark horn, lower base paler, feet very dark brown, eyes buff. Total length 96 mm.; culmen 9, wing 48, tail 34, tarsus 17. Figured. Collected in the Sterling Ranges, South-west Australia, on the 13th of July, 1911, and is the type of *Acanthiza inornata submastersi*.

Adult female similar to the adult male.

Immature resemble the adults.

Adult. General colour of the upper-surface olive-brown including the head, back, and wings; outer aspect of flight-quills paler than the back, the inner webs hair-brown with buffy-white margins; upper tail-coverts cream-white; tail bronze-brown with a blackish subterminal band and pale tips to the feathers; sides of face olive minutely marked with buffy-white, which gives a speckled appearance; throat and remainder of the under-surface, including the axillaries and under wing-coverts, buffy-white; under-surface of flight-quills dark hair-brown with pale edges; lower aspect of tail similar to its upper-surface but paler. Bill and feet brown, eyes buff. Total length 99 mm.; culmen 9, wing 49, tail 34, tarsus 18. Figured. Collected on the Strelly River, Mid-west Australia, in September 1907, and is the type of *Acanthiza inornata strellyi*. The sexes are alike.

Nest. A rounded structure with side entrance towards the top, made of dried grasses, etc., held together with spiders' web, and lined with feathers or soft vegetable matter. Dimensions 5 inches by 3 wide.

Eggs. Clutch, two to three. Flesh colour, freckled with reddish-brown all over and forming a zone at the larger end. 16-17 mm. by 12-13.

Breeding-season. September to December.

GOULD described the majority of the species of *Acanthiza*, and of this one he recorded: "Although neither elegant in form nor characterized by any beauty of plumage, the present little bird demands as much of our attention as any other species of the group. Its true habitat seems to be the south-western parts of Australia, for it is numerously dispersed over the colony of Swan River; it is equally abundant at King George's Sound, and as I killed specimens on the small low islands at the mouths of Spencer's and St. Vincent's Gulfs, it is most probable that its range extends all along the coast between those localities. Independently of its plainer colouring, the truncated form of its tail serves at once to distinguish it from the *Acanthiza apicalis*, with which it is often seen in company; unlike the latter bird however it does not erect its tail, but carries it in a line with the body. Its note is a little feeble song somewhat resembling

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that of the *Maluri*. It feeds solely on minute insects of various kinds, in searching for which it assumes the usual clinging and prying positions of other insectivorous birds which seek their food among the leaves and branches of shrubs and trees."

Mr. Tom Carter's only note reads: "Is common about Albany, creeping about in the scrubby undergrowth of the Jarrah and Red Gum timber around there."

Mr. Edwin Ashby states: "I have found this Tit fairly common in the neighbourhood of Perth, W.A., and had recently a specimen sent me in the flesh from the coastal scrubs over a hundred and fifty miles north of Perth, this somewhat extending its range northward. I think it must be considered as a wet district bird confined to the south-western corner of the state."

Milligan only wrote: "I secured several on my first trip. The birds had bred, and had their young with them."

Other writers record them as Common or Rare, but apparently considered this little bird so insignificant as to object to record any of its habits at all.

The restricted range of this little species did not suggest much variation, so that for sixty years all specimens from West Australia were regarded as identical. Then North differentiated the birds from King George's Sound as a distinct species, the Swan River form having been named by Gould. This was rightly considered by contemporary workers as a doubtful "species" as it was certainly only of subspecific value, and I therefore regarded it as such in my "Reference List" admitting:

Acanthiza inornata inornata Gould.

Swan River District, West Australia.

and

Acanthiza inornata mastersi North.

King George's Sound, South West Australia.

Later I separated as:

Acanthiza inornata submastersi

writing: "Differs from *A. i. mastersi* in having much paler flanks and much lighter back" the form from

Stirling Ranges, South West Australia.

The year after Mr. Tom Carter sent me a bird from Carnarvon, Mid-West Australia which I unhesitatingly named:

Acanthiza inornata carnarvoni

stating: "This new subspecies differs from *A. i. mastersi* North, in being lighter above and in having the feathers of the fore-head much whiter at the

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tip, and in having a distinct greenish tint on the wing-coverts and back. Wing 54 mm., culmen 7, tarsus 15," at the same time describing :

Acanthiza inornata strellyi

from the Strelly River, Mid-West Australia, thus : " This new subspecies differs from *A. i. inornata* Gould in being darker above and in having the tips of the feathers on the fore-head much less distinctly tipped with whitish. Wing 49 mm., culmen 9, tarsus 18."

ACANTHIZA LINEATA.

STRIATED TIT.

(PLATE 450, two right-hand figures).

ACANTHIZA LINEATA Gould, Synops. Birds Austr., pt. iv., pl. (59), April 1, 1838: New South Wales.

Acanthiza lineata Gould, Synops. Birds Austr., pt. iv., pl. (59), April 1, 1838; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 146, Dec. 1838; *id.*, Birds Austr., pt. xx., (Vol. III., pl. 61), Sept. 1st, 1845; *id.*, Handb. Birds Austr., Vol. I., p. 372, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 297, 1883; Ramsay, Tab. List Austr. Birds, p. 9, 1888; Hall, Key Birds Austr., p. 25, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 234, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 276, 1904; A. G. Campbell, Emu, Vol. V., p. 142, 1906 (Kangaroo Island); Mathews, Handl. Birds Austral., p. 75, 1908; Ingle, Emu, Vol. X., p. 123, 1910 (Vic.); Cleland, *ib.*, Vol. XI., p. 86, 1911 (Food); S. A. White, *ib.*, Vol. XIV., p. 141, 1915 (Vic.); Cheney, *id.*, p. 210, (Vic.); Howe, *id.*, Vol. XVI., p. 173, 1917; S. A. White, *ib.*, Vol. XIX., p. 219, 1920 (Q.).

Acanthiza modesta De Vis, Ann. Queensl. Mus., No. 6, p. 43, Sept. 1905: Charleville, Queensland.

Acanthiza lineata lineata Mathews, Nov. Zool., Vol. XVIII., p. 349, 1912; *id.*, List Birds Austr., p. 215, 1913.

Acanthiza lineata modesta Mathews, Nov. Zool., Vol. XVIII., p. 349, 1912; *id.*, List Birds Austr., p. 216, 1913.

Acanthiza lineata chandleri Mathews, Nov. Zool., Vol. XVIII., p. 349, Jan. 31, 1912: Olinda, Victoria; *id.*, List Birds Austr., p. 216, 1913; Belcher, Birds Geelong, p. 276, 1914.

Acanthiza lineata clelandi Mathews, Nov. Zool., Vol. XVIII., p. 349, Jan. 31, 1912: Mount Lofty, South Australia.

Acanthiza lineata whitei Mathews, Austral. Av. Rec., Vol. I., pt. 2, p. 44, April 2, 1912: Kangaroo Island; *id.*, List Birds Austr., p. 216, 1913.

Acanthiza lineata goulburni Mathews, Austral. Av. Rec., Vol. I., pt. 4, p. 93, Sept. 18, 1912: Goulburn, New South Wales, *id.*, List Birds Austr., p. 216, 1913.



H. Grönvold, del.

Witherby & Co

ACANTHIZA UROPYIALIS.
(CHESTNUT-RUMPED TIT).

ACANTHIZA LINEATA
(STRIATED TIT).

STRIATED TIT.

Acanthiza lineata whitei Mathews, Bull. Brit. Ornith. Club, Vol. XL., p. 106, March 31, 1920 : Bunya Mts., South Queensland.

Not—

A. l. whitei id., as above.

Acanthiza lineata alberti Mathews, *ib.*, p. 121, April 30, 1920 : new name for preceding.

DISTRIBUTION. Eastern Australia from North Queensland (Charleville) to South Australia, Kangaroo Island.

Adult. Entire crown of head rust-brown narrowly streaked with white ; back, scapulars, upper wing-coverts, and outer aspect of flight-quills dull green ; long upper tail coverts rust-brown, the bastard-wing, median and greater upper wing-coverts, and primary-coverts have dark brown centres to the feathers ; inner webs of flight-quills dark hair-brown with white margins ; tail bronze-brown with a broad black subterminal band, which becomes narrow and almost obsolete on the outermost feathers ; sides of face yellowish-white streaked with dark brown, throat similar but the dark markings much less pronounced ; remainder of under-surface sulphur-yellow with a tinge of buff on the under tail-coverts, axillaries, and under wing-coverts ; under-surface of flight-quills dark hair-brown with white edgings ; lower aspect of tail similar to its upper surface. Bill with upper-mandible dark brown, lower paler ; feet smoky-brown, eyes pale smoky-white. Total length 90 mm. ; culmen 7, wing 48, tail 33, tarsus 17. Collected on Bunya Mountains, South Queensland, on the 3rd of October, 1916, and is the type of *Acanthiza lineata alberti*. The sexes are alike.

Immature very similar to the adult, but the head markings less defined.

Adult female. Crown of head and nape rust-brown with white shaft-lines to the feathers ; back, scapulars, and wings olive ; inner webs of flight-quills hair-brown with pale margins ; tail ochreous-brown with a wide blackish subterminal band ; sides of face cream-white with dark shaft-lines to the feathers ; throat and breast also cream-white with blackish lanceolate centres to the feathers ; abdomen, sides of body, and under tail-coverts pale sulphur-yellow ; axillaries and under wing-coverts also pale sulphur-yellow like the inner edges of the quills below, remainder of the quill-lining dark brown ; lower aspect of tail similar to its upper-surface ; Bill black ; feet brown ; total length 98 mm. ; culmen, 7, wing 54, tail 39, tarsus 18. Figured. Collected at Goulburn, New South Wales, in December 1898.

Adult male similar to the adult female.

Immature. Somewhat similar to the adult.

Nest. Pear-shaped with hood entrance. Composed of bark and grass matted together with spiders' web and lined with feathers or other soft material. Dimensions 4 to 6 inches by 3 or 4.

Eggs. Clutch three. Pinkish or creamy-white, freckled all over, but forming a zone at the larger end, with pinkish or brownish-red. 19-21 mm. by 12-13.

“Typically the eggs of this species may be distinguished from those of any other of the genus by their elongated form and the markings being congregated principally in the form of a distinct zone on the larger end.” (North.)

Breeding-season. September to December.

GOULD'S notes on this species which he described read : “This pretty little species inhabits most of the wooded districts of South Australia, particularly

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the gullies among the mountain ranges ; it is also tolerably abundant among the brushes and trees near the brooks and rivulets of the Liverpool range in New South Wales. It is very active and animated in its actions, clinging and prying about among the branches in search of insects in every variety of position. It is a permanent resident in the countries above mentioned, but it is not found in Tasmania or Western Australia. Unfortunately I did not succeed in procuring its nest, but judging from those of the other members of the genus, it is doubtless of a domed form. Its food consists entirely of insects, which are procured from the leaves and flowers of the various trees."

Captain S. A. White has written me : "*A. lineata* is fairly numerous all through our Mount Lofty Ranges and hunts for its food from the tops of the highest forest trees to the ground where I have seen it hopping about amongst the grass looking for insects. While at work it utters a most remarkably loud call for so small a bird, consisting of one note only. The Kangaroo Island form is plentiful in the timbered country of Kangaroo Island and its habits and call seem the same as those of the mainland form. They must devour an immense quantity of scale and other insects in a day for they are searching the live-long day looking at both sides of every leaf, into every crack and corner, often hanging head downwards to get to the extremity of some slender and young growth of a eucalypt."

Mr. F. E. Howe's notes read : "*A. lineata* is also an early breeder and foster-parent to the Cuckoo, *C. basalis* and *C. plagosus*. Nests have been found as low down as five feet, and as high as forty feet from the ground. A favoured site is the branchlet of a burnt tree and both birds help in building the nest. Incubation takes about twelve days and the young when born are blind. They are sparingly clothed in light grey down. At four days old the eyes were open and were brown in colour. Gape and mouth yellow : bill and feet, light purplish grey. At eight days old the primaries were unfurling and were ashy-grey ; back, olive ; rump, ochreous-brown ; sides and abdomen, creamy-buff. On November 4th, 1908, they were twelve days old and were nearly fully fledged. They were taken from the nest to sit for their photographs and it was interesting to watch the parents feeding them in their turn and never once did they feed the same youngster twice in succession. We observed three mature birds helped in this task."

Mr. E. J. Christian has written : "Often called the 'Hanging Tit' on account of its favourite habit, hanging on the foliage of the Eucalyptus. It is fairly common here in Victoria and can often be heard singing merrily in the trees. In this part it is never found away from the Creek, and even there it is only found in thickly timbered parts. It has a beautiful song which can be heard at quite a distance and not as is commonly the case with the *Acanthizas*,

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whose song is only heard when one is very close. It resembles a Honey-Eater in some of its actions as it moves about in front of a honey-laden flower. It also hovers in front at the very end of the foliage picking off many insects which other birds do not attack on account of their position."

Mr. J. W. Mellor writes: "Is a common bird in the ranges in South Australia, being found in the Mount Lofty ranges in numbers and is a quick actioned little bird, living principally about the tree tops and prying into the thick bunches of leaves with unerring accuracy after small insect life."

Writing from Cobbora, New South Wales, Mr. Thos. P. Austin states: "The only time I have seen the present species in this district, was on December 29th, 1914, when I shot a pair in the topmost branches of a fairly large tree growing in thick scrub."

Mr. Edwin Ashby states: "I have found the Striated Tit to be a common bird in the wet heavily timbered districts of New South Wales, Victoria and South Australia. In this latter state it is very numerous throughout the higher altitudes of the Mount Lofty Ranges where it prefers the hilly timbered country whereas *A. pusilla* prefers the thick bushes of the creek beds and valleys."

A. G. Campbell, criticising Kangaroo Island forms, wrote: "There is no difference between specimens from the island and those from the mainland. The little voices of this species were always heard among the glossy foliage of the sugar gum-trees, and were also noted in white gum timber inland."

S. A. White, writing of Mallacoota bird forms, stated: "Numbers of these birds were met with in the timber country. They were incessantly moving and uttering their sharp little clicking note. On comparing specimens it was found that the Mallacoota birds being very dark on the back, most resembled the Kangaroo Island specimens."

The first form of this species to be distinguished was comparatively recently when De Vis got a strange little bird from Charleville, Queensland, and regarded it as a new species and named it *Acanthiza modesta*. When I prepared my "Reference List" my series showed that at least four subspecies could be separated and therefore I distinguished:

Acanthiza lineata lineata Gould.

New South Wales.

Acanthiza lineata modesta De Vis.

Queensland.

Acanthiza lineata chandleri Mathews.

"Differs from *A. l. lineata* in being much darker above and browner below. Olinda, Victoria."

Victoria.

Acanthiza lineata clelandi Mathews.

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"Differs from *A. l. lineata* in being much greener above and below especially on the abdomen. Mount Lofty, South Australia."

South Australia.

When Captain S. A. White sent me specimens from Kangaroo Island, I named these :

Acanthiza lineata whitei.

"Differs from *A. l. clelandi* in being darker green above, and in having the head darker brown."

When Witmer Stone undertook the listing of the type specimens of Australian Birds in Philadelphia, he pointed out, although Gould had indicated New South Wales as the type locality, all the specimens were labelled South Australia, and with the information then available an error was suggested and South Australia considered the correct locality. I therefore named the New South Wales form :

Acanthiza lineata goulburni

writing : "Differs from *A. l. lineata* (from South Australia) in being distinctly less green above and almost white below."

Later, I named the form from the Bunya Mountain, South Queensland, *A. l. whitei* (overlooking the previous use of this name), so I changed it to *A. l. alberti*, the difference being written as : "Differs from *A. l. goulburni* Mathews in having a distinctly yellow under-surface and in having a duller upper-surface, so that the lines on the head seem more pronounced."

This now appears to be a distinct case in favour of the claim that Gould superseded specimens without indication. At the present time there can be little hesitation in accepting the birds in Philadelphia as being the specimens figured in Gould's *Birds of Australia* folio edition, but that they do not constitute in many cases the types of the species which were duly presented to the British Museum is certain. Thus Gould presented to the British Museum the specimens figured in his Synopsis and this species is one of them. Consequently New South Wales must be accepted as the type locality and the name *clelandi* revived for the South Australian subspecies. The reason why Gould's specimens are labelled as from South Australia appears to be due to the fact that he collected this species commonly there himself and as previously suggested these were preserved in a better manner they were used in place of the older ones. So far I have been unable to trace the specimens described in the Proc. Zool. Soc. (Lond.) for 1841, but otherwise all the types of the earlier described species of Gould would not appear to be in Philadelphia but in London. Consequently the subspecies will now be :

Acanthiza lineata lineata Gould.

New South Wales.

STRIATED TIT.

Acanthiza lineata modesta De Vis.

North Queensland.

Acanthiza lineata alberti Mathews.

South Queensland.

Acanthiza lineata chandleri Mathews.

Victoria.

Acanthiza lineata clelandi Mathews.

South Australia.

Acanthiza lineata whitei Mathews.

Kangaroo Island.

This species differs from *A. pusilla*, the type of *Acanthiza*, in its short stout bill, not so long or broad as that of *Milligania*, with the nasal groove occupying nearly half its length, the rictal bristles strong and prominent and in its shorter stouter feet showing obscurely scutes on the front of the tarsus. It seems worthy of at least subgeneric rank and I therefore propose for it the new name SUBACANTHIZA. Then *Subacanthiza lineata*.

ACANTHIZA UROPYGIALIS.

CHESTNUT-RUMPED TIT.

(PLATE 450, two left-hand figures).

ACANTHIZA UROPYGIALIS Gould, Synops. Birds Austr., pt. iv., pl. 60, April 1, 1838 : New South Wales.

Acanthiza uropygialis Gould, Synops. Birds Austr., pt. iv., pl. (60), April 1, 1838 ; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 146, Dec. 1838 ; *id.*, Birds Austr., pt. XXI. (Vol. III., pl. 56), Dec. 1st, 1845 ; *id.*, Handb. Birds Austr., Vol. I., p. 367, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 298, 1883 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 25, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 236, 1901 ; Milligan, Emu, Vol. III., p. 104, 1903, W.A. ; *ib.*, Vol. IV., p. 9, 1904 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 279, 1904 ; Mathews, Handl. Birds Austral., p. 75, 1908 ; Whitlock, Emu, Vol. IX., p. 199, pl. XIX., 1910 (W.A.) ; Macgillivray, *id.*, Vol. X., p. 33, 90, 1910 (N.S.W.) ; Cleland, *ib.*, Vol. XII., p. 12, 1912 (Food) ; Wilson, *ib.*, p. 35 (Vic.) ; Stone, *ib.*, p. 47 (Vic.) ; Mellor, *ib.*, p. 186, 1913 (S.A.) ; Hill, *ib.*, p. 244, (Cent. A.) ; S. A. White, *ib.*, Vol. XIII., p. 27, 1913 (S.A.) ; Chandler, *ib.*, p. 41 (Vic.) ; Howe, *ib.*, Vol. XVI., p. 171, 1917 (Review) ; S. A. White, *ib.*, Vol. XVIII., p. 22, 1918 ; Ashby, *ib.*, Vol. XX., p. 134, 1921 (W.A.).

Acanthiza uropygialis uropygialis Mathews, Nov. Zool., Vol. XVIII., p. 350, 1912 ; *id.*, List Birds Austr., p. 216, 1913.

Acanthiza uropygialis ruthergleni Mathews, Nov. Zool., Vol. XVIII., p. 350, Jan. 31, 1912 : Rutherglen, Victoria ; *id.*, List Birds Austr., p. 216, 1913.

Acanthiza uropygialis mellori Mathews, Nov. Zool., Vol. XVIII., p. 350, Jan. 31, 1912 : Eyre's Peninsula, South Australia ; *id.*, List Birds Austr., p. 216, 1913.

Acanthiza uropygialis augusta Mathews, Nov. Zool., Vol. XVIII., p. 350, Jan. 31, 1912 : Port Augusta, South Australia ; *id.*, List Birds Austr., p. 216, 1913.

Acanthiza uropygialis nea Mathews, Nov. Zool., Vol. XVIII., p. 350, Jan. 31, 1912 : Burra-coppin, West Australia ; *id.*, List Birds Austr., p. 217, 1913.

Acanthiza uropygialis murchisoni Mathews, Nov. Zool., Vol. XVIII., p. 350, Jan. 31, 1912 : East Murchison, West Australia ; *id.*, List Birds Austr., p. 217, 1913.

CHESTNUT-RUMPED TIT.

Acanthiza uropygialis condora Mathews, Austral. Av. Rec., Vol. I., pt. 3, p. 78, June 28, 1912: Leigh's Creek, South Australia; *id.*, List Birds Austr., p. 216, 1913; S. A. White, Emu, Vol. XIV., p. 189, 1915; H. L. White, *ib.*, Vol. XV., p. 35, 1915; S. A. White, Trans. Roy. Soc. South Austr., *id.*, Vol. XXXVIII., p. 431, Dec. 1914; *id.*, Vol. XXXIX., p. 753, Dec. 1915.

DISTRIBUTION. New South Wales to West Australia through Central Australia, apparently occupying the dry districts of extra-tropical Australia.

Adult male. General colour of the upper-surface dark ash-grey including the top of the head, back and wings; bastard-wing, median and greater wing-coverts dark brown with slightly paler edges to the feathers; primary-coverts and flight-quills slightly paler on the inner edges of the latter; upper tail-coverts and base of tail rufous-chestnut, the terminal portion of the latter blackish with white, or grey tips to the feathers; fore-head whitish with dark bars to the feathers; sides of face grey speckled with white; throat, breast, abdomen, under tail-coverts, and under wing-coverts greyish-white; thighs dusky grey; under-surface of flight-quills hair-brown; lower aspect of tail similar to its upper-surface. Bill and feet black, eyes pale buff; Total length 93 mm.; culmen 8, wing 52, tail 39, tarsus 20. Figured. Collected at Lake Way, Mid-West Australia, on the 20th of August, 1909, and is the type of *A. u. murchisoni*.

Adult female from the same locality similar to the adult male.

Adult male. Head, back, and wings mouse-brown; base of tail rufous-chestnut, blackish on the subterminal portion, with white, or grey tips to the feathers; base of fore-head and sides of face speckled with dark brown and white; throat white with dark tips to the feathers; breast and sides of breast pale grey; abdomen and under tail-coverts white; lower flanks tinged with pale rufous; axillaries and under wing-coverts buffy-white like the inner edges of the quills below; remainder of quill-lining dark brown; lower aspect of tail blackish with rufous at the base and whitish tips to the feathers. Bill and feet black; eyes pale yellow with enamel ring, periphery greyer. Total length 95 mm.; culmen 7, wing 50, tail 39, tarsus 19. Figured. Collected on the Murray Flats, South Australia, on the 30th of May, 1911, and is the type of *A. u. mellori*.

Adult female from the same locality similar to the adult male.

Nest. Oval with side entrance, composed of bark and grass, held together with spider's web, and lined with feathers. Dimension 4 inches by 3. Placed in a hollow limb. "The nest of *A. u. augusta* always placed in the hollow trunk of a dead tree, sometimes even in a fallen tree, and the entrance is nearly always through a crack or knothole. Length 7 inches wide by $3\frac{1}{2}$. Composed of dried grass and twigs, and beautifully lined with a thick wall of feathers and fur or wool." (S. A. White, south end of Lake Gairdner, September 10th, 1912). "Placed in a hollow dead tree. Cup-shaped and composed of fine rootlets, some spiders' cocoons and dead small yellow flowers on the edge. Not lined. Egg cavity 2 inches by 1 deep. Outside 4 by $1\frac{3}{4}$ deep" (*ib.*, Gawler Ranges, S.A., September 14th, 1912.)

Eggs. Clutch three, fleshly white, freckled all over, but more at the larger end, with reddish-brown 16-17 mm. by 13.

Breeding-season. July and August to December.

THE BIRDS OF AUSTRALIA.

GOULD also described this species, and apparently he never met with it while in Australia as years afterwards he still wrote: "No notes of any kind having been sent with the specimens."

Captain S. A. White has written: "*Acanthiza uropygialis mellori*. This little bird is well distributed over the lower end of Eyre's Peninsula. They are active little birds, moving along in small parties full of animation as they search in the foliage of the branches of the trees and even on the ground for insect food. Their general note is a low plaintive one, but at times they sing a short sweet song. *A. u. condora*. I have met with this distinctive subspecies in many parts of the interior but it does not come down south. Its habits are unlike those of other members of the genus. *A. u. augusta*. This bird is not plentiful and seems to have a very restricted range for I have never seen it very far away from the head of the gulf."

Mr. Edwin Ashby's notes read: "This is always a dry country bird. It is numerous in the Mallee and Pine Scrub (*Calytris*) that borders the River Murray, in similar scrub on the South Australian and Victorian border. I have specimens sent me from Lake Gillies in Northern South Australia, and I have collected it on the Gold Fields in Western Australia and in November last (1920) I found it at Watheroo, about 130 miles North of Perth. Its nesting site is very distinct from that of other members of the genus. I have always found its nest in a hollow or split in a pine or mallee trunk made by the blowing off of a bough or other splitting of the tree, the slim little birds being able to pass through the narrowest slit and modifying the shape of the nest according to the limitations of the slight cavity."

Mr. Tom Carter has written me: "The Chestnut-rumped Tit was never observed by me in the South West, but is not uncommon in Mid-West districts, and also the Gascoyne and North-West Cape areas. They feed in scrub and also in the gum trees constantly uttering a cheerful little song."

Whitlock, writing of the birds of the East Murchison, records: "Chestnut-rumped Tit. A very common bird throughout the district, but rather avoiding the scrub immediately around Lake Violet. I found many nests containing from two to four eggs. With one exception all were in hollow stems of bushes, some of them remarkably small. The walls of the nests were thin, but the lining always profuse, consisting of fur, feathers, string, or any soft material to hand. Despite the situation of the nest, it is a true dome-shaped structure, with the entrance near the top. The species is double brooded. The exceptionally placed nest alluded to was built in a pipe of bark which had peeled off a dead mulga, but from which it was still suspended. It was eventually torn from its position. There were fresh Emu tracks near by."

CHESTNUT-RUMPED TIT.

Captain S. A. White has written : " The Chestnut-rumped Tit was numerous throughout the ranges, and in great numbers round the shores of Lake Gairdner ; they were nesting freely. We took eggs on the 9th of August, 1912, at the south-east end of the Gawler Ranges, incubation well advanced, while nearly a month later we took fresh eggs on the shores of Lake Gairdner, several hundreds of miles to the north-west. The favourite nesting site was in the hollow boles of dead trees, and we often found them placed in a hollow log lying on the ground, clutch consisting of three or four ; and the nest is constructed of dry grasses (often clover) lined with feathers. The birds are most restless in their habits, always on the move, with a quick, hopping movement, uttering a bright little twittering note as they search over the ground or in the bushes for insects. Sometimes they would break out into a plaintive little song."

The very few notes above given suggest that this is a bird of the interior, following the dry country almost to the coast line in South Australia, but never frequenting the wet country, and from the accounts seems to have somewhat differentiated habits, though superficially there is little difference to be seen when this form is contrasted with the normal *Acanthiza*, as exemplified in *A. pusilla*.

The technical history of this species is very short and clear. Although with a wide range and showing variation the species was never critically examined until the preparation of my " Reference List " ten years ago. Upon comparing my series it was obvious that half a dozen subspecific forms were easily distinguishable and these I named as follows :

Acanthiza uropygialis uropygialis Gould.

New South Wales.

Acanthiza uropygialis ruthergleni

" Differs from *A. u. uropygialis* in its paler rump and basal half of tail, and darker on the flanks and breast. Victoria (Rutherglen) "

Victoria.

Acanthiza uropygialis mellori

" Differs from *A. u. ruthergleni* in its greyer upper coloration, only the head and lower back being greenish. South Australia (Eyre's Peninsula) "

South Australia.

Acanthiza uropygialis augusta

" Differs from *A. u. mellori* in having a lighter back and upper tail-coverts. Port Augusta."

South Australia (Port Augusta).

Acanthiza uropygialis nea

" Differs from *A. u. mellori* in lacking the green on the head and lower back. West Australia (Burracoppin)."

West Australia.

THE BIRDS OF AUSTRALIA.

Acanthiza uropygialis murchisoni

"A pallid form differing from *A. u. nea* in being light grey above, forehead marks almost missing: white underneath lacking flank coloration. West Australia (East Murchison)"

West Australia (East Murchison).

Six months later, receiving specimens from Central Australia, I named:

Acanthiza uropygialis condora

"Differs from *A. u. augusta* in its much paler upper-surface and rump. Leigh's Creek, Central Australia."

Central Australia.

These seven subspecies were admitted in my "List" and no more subspecies have since been named, while the differences indicated above have been easily seen by local workers.



H. Grönvold. del

Witherby & Co

MILLIGANIA ROBUSTIROSTRIS.
(*THICK-BILLED TIT*).

ACANTHIZA IREDALEI.
(*THIN-BILLED TIT*).

ACANTHIZA EWINGII
(*TASMANIAN TIT*).

ACANTHIZA IREDALEI.

THIN-BILLED TIT.

(PLATE 451.)

ACANTHIZA IREDALEI Mathews, Bull. Brit. Ornith. Club, Vol. XXVII., p. 97, May 26, 1911: Lake Way, West Australia.

Acanthiza tenuirostris Zietz, Trans. Roy. Soc. South Austr., Vol. XXIV., pt. II., p. 112, December 1900: Leigh's Creek, interior of South Australia.

Not—

Acanthiza tenuirostris Lafresnaye, Revue Zool., 1841, p. 242.

Acanthiza tenuirostris Milligan, Emu, Vol. III., p. 103, 1903 (W.A.); North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 281, 1904; Hall, Key Birds Austr., 2nd ed., p. 112, 1906; Mathews, Handl. Birds Austral., p. 76, 1908; Jackson, Emu, Vol. IX., p. 136, 1910 (W.A.); Whitlock, Emu, Vol. X., p. 200, 1910 (W.A.); Howe, *ib.*, Vol. XVI., p. 174, 1917 (Review); *id.*, *ib.*, Vol. XVII., p. 56, 1917; Whitlock, *ib.*, Vol. XX., p. 180, 1921 (W.A.).

Acanthiza iredalei Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 97, 1911; *id.*, List Birds Austr., p. 217, 1913; *id.*, Emu, Vol. XX., p. 31, 1920 (Detailed a/c.)

Acanthiza morgani Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 97, May 26, 1911: New name for *A. tenuirostris* Zietz as above (preoccupied).

Campbell, Emu, Vol. XVIII., p. 259, 1919 (W.A.); *id.*, Vol. XIX., p. 161, 1920 (Error).

Acanthiza iredalei iredalei Mathews, Nov. Zool., Vol. XVIII., p. 352, 1912; *id.*, List Birds Austr., p. 217, 1913.

Acanthiza iredalei morgani Mathews, Nov. Zool., Vol. XVIII., p. 352, 1912; *id.*, List Birds Austr., p. 217, 1913; S. A. White, Emu, Vol. XIV., p. 189, 1915; *id.*, Trans. Roy. Soc. South Austr., Vol. XXXIX., p. 753, Dec. 1915; *id.*, *ib.*, Vol. XLI., p. 459, Dec. 24, 1917; Ashby, Emu, Vol. XVI., p. 234, 1917; S. A. White, *ib.*, Vol. XVIII., p. 197, 1919.

Acanthiza winiamida Wilson, Emu, Vol. XVI., part 3, p. 169, Jan. 15, 1917: Winiam East, 12 miles S.E. of Nhill, Victoria.

Acanthiza iredalei winiamida Wilson, *ib.*, p. 170.

DISTRIBUTION. Across Central Australia from Shark's Bay, West Australia, to the Victorian Mallee.

THE BIRDS OF AUSTRALIA.

Adult male. General colour of the upper-surface olive including the hinder part of the head, back, scapulars, and lesser upper wing-coverts; median and greater upper wing-coverts, bastard-wing, and primary-coverts dark-brown with pale edges to some of the feathers, flight-quills also dark brown narrowly edged with whitish on the inner webs; tail blackish with whitish or greyish-brown tips to the feathers; fore-part of head whitish with dark centres to some of the feathers; sides of face dusky with buffy-white tips to the feathers; throat and upper-breast dull white irregularly and minutely marked with brown; lower-breast, abdomen, sides of body, thighs, and under tail-coverts dull sulphur-yellow; under wing-coverts buffy-white, under-surface of flight-quills hair-brown; lower aspect of tail blackish tipped with white or greyish-brown. Bill and feet black; eyes buff. Total length 90 mm.; culmen 10, wing 48, tail 36, tarsus 18. Figured. Collected at Lake Way, Mid-West Australia, on the 26th of July, 1909, and is the type of *Acanthiza iredalei*.

Adult female similar to the adult male.

Nest. "An oblong structure, dome-shaped, with opening near the top. Loosely constructed of thin strips of bark of a stringy nature and portion of a soft plant, which are woven together and fastened with cobwebs. Warmly lined with a white substance resembling wool. Length 5 inches, width nearly 3 inches." (H. L. White.)

Eggs. "Clutch 3, pinkish-white, marked all over but particularly at the larger end, with very small spots of dull reddish-brown, 14 mm. by 10." (*ib.*)

Breeding-season. July-August.

THIS little Central form was described from Leigh's Creek, South Australia and very soon afterwards Milligan reported it from the Murchison district, West Australia concluding: "It is nearest allied to *A. reguloides*, but is a smaller bird, and in addition to other differences easily distinguished by its yellowish-white upper tail-coverts instead of ochreous as in *A. reguloides*. It appears to me that *A. tenuirostris* is the western form of *A. reguloides* or vice versa."

Later Whitlock furnished a complete account of the finding of the nest and eggs from which I quote. Writing of the birds of East Murchison he stated: "I was glad to renew my acquaintance with this *Acanthiza*, which I added to the avifauna of this State in 1903. I obtained the first Western Australian specimens at Lake Austin in that year. I believe these specimens were referred to Mr. Zietz, who declared them identical with the types of *A. tenuirostris* from South Australia. There is yet a large tract of country to be bridged over before the geographical range becomes continuous. In Western Australia I have as yet never met with this *Acanthiza* away from the samphires. Indeed, it seems to exclusively haunt the margins of the salt lakes, where this plant and a few varieties of the *Salsolaceæ* abound. I cannot recollect ever seeing it perch in a bush, or even in tea-tree scrub, though the latter is abundant enough around certain of its haunts. It is an inconspicuous little bird, gifted with very feeble powers of song, though its call note is distinct and peculiar.

THIN-BILLED TIT.

To me these notes resemble the syllables 'Tip-tip-tip' uttered rapidly but with a distinct glassy ring about them. Possibly it has a song, but I have only heard this call note between the sexes. I have watched the parents feeding their young, and have also watched pairs before the breeding season had set in. They seem to spend most of their time busily searching the samphires or salt-bush for insect life as they flit from bush to bush, and as the observer moves towards them, they are rather wary, and, unlike other species of *Acanthiza*, will not permit of a near approach."

Captain S. A. White has written me: "This little bird is widely distributed over the interior but is nowhere plentiful. Mostly found on open plain amongst low bush they are very quick in their movements."

Mr. E. Ashby also writes: "I have only seen this bird alive near Nackara, on the Broken Hill Line in South Australia. There it seemed to prefer the open rocky hill sides covered with Salt Bush and Bluebush but was exceedingly shy, mostly shifting on before the collector was within range. I received birds in the flesh in August 1910, from Leigh's Creek (the type locality) further north, and have specimens collected at Waddilina in West Australia."

Even Milligan and Zeitz were dubious of the specific distinction of this bird, the latter placing his doubts before North who stated it was quite distinct from any other of the group. Nevertheless a writer was so confused as to write a long note in the *Emu* declaring that a plate of *Geobasileus hedleyi rosinae* portrayed the present species, and made a whole series of inaccurate remarks. I replied laying down the facts of the cases which need not be here recapitulated save as they refer to this species. *Acanthiza tenuirostris* was selected by Zietz as the name for a new species from the interior of South Australia. Milligan reported the same species from West Australia. I received specimens of the latter and distinguished it as a new species with the name *A. iredalei*. At the same time I pointed out that the South Australian species confused with it must have a new name and so I named it *A. morgani*. I later agreed that these might be representative forms and as the rules lay down anteriority of position as carrying the priority of the names to be used became *Acanthiza iredalei iredalei* and *A. i. morgani* and as such I listed these birds in my "Reference List" and my 1913 "List." Later Wilson added another form from the Victorian Mallee as *A. winiamida* noting that I should call it *A. i. winiamida*. In the paper cited these are the names I used.

The forms now admitted read:

Acanthiza iredalei iredalei Mathews.

Interior of Western Australia.

The type was named from Lake Way but Campbell and Whitlock have recorded it from Shark's Bay.

THE BIRDS OF AUSTRALIA.

Acanthiza iredalei morgani Mathews.

Interior of South Australia.

This is *A. tenuirostris* Zietz (name preoccupied) described from Leigh's Creek.

Acanthiza iredalei winiamida F. E. Wilson.

Mallee of Victoria.

GENUS—MILLIGANIA.

MILLIGANIA Mathews, Austral. Av. Rec.,

Vol. I., pt. 5, p. 112, Dec. 24th, 1912.

Type (by original designation) *Acanthiza robustirostris* Milligan.

At the introduction of this genus I wrote: "Differs from *Acanthiza* in its stouter bill and longer thinner legs and feet."

The bill is shorter and stouter and broader, the rectal and nasal bristles weaker.

The wing is longer, the third, fourth, fifth and sixth primaries equal and longest, the seventh shorter, and the second equal to the eighth and longer than the secondaries: the first is less than half the length of the second.

The tail is long and square. The legs are longer and the feet weaker, the middle toe and claw being shorter than the hind-toe and claw.

MILLIGANIA ROBUSTIROSTRIS.

THICK-BILLED TIT.

(PLATE 451.)

ACANTHIZA ROBUSTIROSTRIS Milligan, Emu, Vol. III., pt. 1, p. 71, July 1, 1903: Day Dawn, Murchison, West Australia.

Acanthiza robustirostris Milligan, Emu, Vol. III., pt. 1, p. 71, 1903; *id.*, *ib.*, p. 102; Campbell, *ib.*, p. 237, 1904; Emu, Vol. IV., p. 147, 1905 (*re* North's omission); Hall, Key Birds Austr., 2nd ed., p. 112, 1906; Mathews, Handl. Birds Austral., p. 75, 1908; Whitlock, Emu, Vol. IX., p. 197, 1910; Mathews, Nov. Zool., Vol. XVIII., p. 349, 1913; Howe, Emu, Vol. XVI., p. 175, 1917 (Review).

Milligania robustirostris Mathews, List Birds Austr., p. 217, 1913; Howe, Emu, Vol. XVII., p. 56, 1917; Campbell, Emu, Vol. XIX., p. 162, 1920; Mathews, *ib.*, Vol. XX., p. 31, 1920.

Acanthiza marianæ S. A. White, South Austr. Ornith., Vol. II., pt. 2, p. 45, April 1915: Moorilyanna, Everard Ranges Central Australia; *id.*, Emu, Vol. XIV., p. 188; *id.*, Emu, Vol. XVI., p. 158, pl. xxxiii., 1917; Howe, *id.*, p. 175, footnote; Campbell, *id.*, Vol. XIX., p. 162, 1920.

Milligania robustirostris liberia Mathews, Austral. Av. Rec., Vol. III., pt. 3, p. 61, April 7, 1916: Liberia Soak, West Australia*.

Milligania robustirostris moorilyanna Mathews, Bull. Brit. Ornith. Club, Vol. XXXVI., p. 90, July 7, 1916: Everard Ranges, Central Australia.

Milligania robustirostris marianæ Mathews, Emu, Vol. XX., p. 31, 1920.

DISTRIBUTION. Central Australia, mostly western.

Adult female. General colour of the upper-surface dusky-grey including the top of the head, back, and wings; the feathers of the bastard-wing, median and greater upper wing-coverts and primary-coverts centred with dark brown; inner webs of flight-quills dark hair-brown with whitish margins to some of the feathers; rump and upper tail-coverts chestnut; tail blackish with smoke-brown tips to the feathers which are more or less white, or buffy-white on the inner-webs; sides of face and fore-part of head speckled with grey and white; throat dull white; eyelids greyish-white; breast vinous-grey like the under wing-coverts; abdomen cinnamon-buff; lower flanks and under tail-coverts white; thighs dusky; under-surface of flight-quills hair-brown with buffy-white margins; lower aspect of tail blackish-brown

* This is the bird mentioned by North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 280, under *A. uropygialis*.

THICK-BILLED TIT.

with greyish-white tips to the feathers. Bill and feet black, eyes dark red. Total length 90 mm. ; culmen 7, wing 52, tail 39, tarsus 19. Figured. Collected 10 miles west of Moorilyanna Well, Central Australia, on the 28th of July, 1914, and is the type of *Milligania robustirostris moorilyanna*.

Adult male similar to the adult female.

Immature. Very similar to the adult, but browner above.

Nest. "Globular in form, with side entrance, and lightly constructed of grasses held together with spiders' web, the outside decorated with spiders' cocoons; lined with hair-like material." (Mattingley).

Nest. "A well-built oval structure, composed of fine green grasses, with entrance near the top, tied together and lined with spiders' webs and cocoons. Placed in the slender branches of a small bush." (H. L. White.)

Eggs. "Clutch, three. White, with a very faint tinge of pink. Very finely speckled with minute markings of reddish-brown and forming a well defined zone at the larger end. The eggs are oval in shape and the surface is slightly glossy and smooth. 17 mm. by 12." (*ib.*)

Breeding-season. July to October.

I QUOTE the field notes of Whitlock: "This was one of my old Lake Austin friends where I discovered the species in 1903. It is an inconspicuous species, and may easily be mistaken for the more common *A. uropygialis*, with which it often consorts. It was its harsher call notes that attracted my attention to the first pair I procured. I was not long in picking it out again at Wiluna, though I had not heard the notes for fully six years. It has a low-pitched, twittering song, which is not unpleasing, but can only be heard when the bird is at close quarters. In addition, there are certain loud and clear joyous notes, very similar to those of *A. uropygialis*. The harsh 'Thrip-thrip' seems to be a call note or alarm note, and is uttered by the male, and responded to by the female, when building operations are in progress. According to my observations, the female does all the building, the male hanging around the nesting site and keeping an eye on things in general. The favourite situation for the nest is a medium sized or even small narrow-leaved mulga bush, growing in company with two or three similar bushes, but often quite isolated. Where the mulga is large and growing in thickets it is useless to look for the nest, although the bird itself may be found breeding there. . . . Compared with *A. uropygialis*, and other species found in the South-West of this State, I consider *A. robustirostris* a silent bird. It is especially quiet and wary when the young are hatched. I have often stood by a nest containing young, and waited in vain for the parents to show themselves. An easy way to find the nest is to stand within sight of the male, when he is fussing about, uttering the harsh call note, and watch for the female. Presently she may be observed flying from bush to bush, until she disappears into the topmost twigs of some solitary mulga. Ten chances

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to one there you will find her nest. The species is double-brooded, the breeding season commencing early in July and lasting till the beginning of October. If this bird lived in agricultural districts it would be a useful little friend to the farmer and orchardist, as it devours numbers of grubs and caterpillars, as I have myself witnessed."

When Milligan described this fine new species he wrote: "Belongs to the genus *Acanthiza*, and to that section where (A) the dark tail band occupies nearly the terminal half of the feather, and (B) the base of the tail is bright coloured like the rump and upper tail-coverts. The bill is remarkably robust for an *Acanthiza*. The general colour of the upper-surface is much more sombre than with the *Acanthizæ* generally. The head, neck and upper mantle of the male bird are bluish-grey, with black longitudinal striations, some of the feathers of the forehead showing hoary-grey sections, and producing a rigid 'lined' appearance. The 'scaling' or shell marked feathers of the fore-head, present in many members of the genus, are absent in this one. The subscular and auricular regions are evenly and regularly rippled." Later, describing the nestling, he added: "The most notable feature in the nestlings is the absence of the 'shell' or 'scale' markings on the fore-head, which are present in the nestlings of *A. uropygialis* and *A. tenuirostris*. On the other hand, the 'ripple' markings present on the cheeks of the adult are also present on the nestlings."

When Captain S. A. White described his *A. marianæ* he observed: "After entering the granite country west of Indulkana Range, this new *Acanthiza* was met with. It was fairly plentiful in the thick mulga scrubs which extend between the Musgrave and Everard Ranges. In some cases this was the only bird found in these dense, waterless solitudes."

I separated the bird from Liberia Soak as being darker than the typical form, and later I named the Everard Range form ignorant of the fact that Captain White had already done so.

I admit at present only a western and eastern race as:

Milligania robustirostris robustirostris (Milligan).

Central Western Australia.

Milligania robustirostris marianæ (S. A. White).

Central Australia (Everard Ranges).

GENUS—GEOBASILEUS.

GEOBASILEUS CABANIS, Mus. Hein.,

Vol. I., p. 32 (after Oct. 23) 1851.

Type (by monotypy) *Saxicola chrysorrhoa* Quoy & Gaimard.

VERY small birds with long bills, long wings, long tail and stout legs and feet. Compared with *Acanthiza* this genus consists of larger birds with longer stouter bills, longer wings, shorter square tail and shorter stouter legs and stronger feet.

The bill is almost as long as the head, stout but laterally compressed, the basal expansion not so much pronounced, the rictal bristles fewer and the nasal bristles obscure ; otherwise the bill is like that of *Acanthiza*.

The wing is longer, the first primary is very small and narrow, less than half the length of the second, which is less than the eighth and about equal to the secondaries : the third, fourth, fifth and sixth are subequal and longest.

The tail is long and square, but comparatively shorter than that of *Acanthiza*.

The legs are comparatively strong, the front of the tarsus booted, the hind part bilaminate : the middle toe and claw is a little longer than the hind-toe and claw, the outer and inner toes are subequal and inner with claw is about equal to the middle toe alone : all the claws are short.

GEOBASILEUS CHRYSORRHOUS.

YELLOW-RUMPED TIT.

(PLATE 452.)

SAXICOLA CHRYSORRHOA Quoy and Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 198, pl. 10, f. 2 (pref. June 29) 1830; New South Wales.

Saxicola chrysorrhoa Quoy and Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 198, pl. 10, f. 2, 1830.

Acanthiza chrysorrhoa Gould, Synops. Birds Austr., pt. iv., pl. 60, 1838; *id.*, Birds Austr., pt. xvi. (Vol. III., pl. 63), Sept. 1st, 1844; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 298, 1883; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 240, 1887; Hall, Key Birds Austr., p. 25, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 238, 1901; A. G. Campbell, Emu, Vol. II., p. 13, 1902 (Vic.); Milligan, *ib.*, p. 72 (W.A.); M'Clymont, *ib.*, p. 98 (Tas.); Littler, *ib.*, p. 171, 1903 (Tas.); Milligan, *ib.*, Vol. III., p. 17, 1903 (W.A.); Littler, *id.*, p. 214, 1904 (Tas.); A. G. Campbell, *id.*, Vol. IV., p. 120, 1905 (Tas.); Berney, *ib.*, Vol. V., p. 73, 1905 (N.Q.); Batey, *ib.*, Vol. VII., p. 7, 1907 (Vic.); Legge, *ib.*, p. 149 (Tas.); Mathews, Handl. Birds Austr., p. 75, 1908; Littler, Handb. Birds Tasm., p. 39, 1910; Hall, Emu, Vol. IX., p. 128, 1910 (S.A.); Fletcher, *ib.*, p. 252 (Tas.); Cleland, *ib.*, Vol. XI., p. 86, 1911 (Food); S. A. White, *ib.*, Vol. XIII., p. 27, 1913 (S.A.); Macgillivray, *ib.*, p. 171, 1914 (N.Q.); S. A. White, *ib.*, Vol. XIV., p. 141, 1915 (Vic.); Cheney, *ib.*, p. 210, (Vic.); Howe, Emu, Vol. XVI., p. 170, 1917 (Review); Lord, *id.*, Vol. XIX., p. 105, 1919 (Tas.); Alexander, *id.*, Vol. XX., p. 166, 1921 (W.A.); S. A. White, South Austr. Orn., Vol. VI., pt. 5, p. 99, 1922.

Geobasileus chrysorrhous Cabanis, Mus. Hein, Vol. I., p. 32, 1851; Gould, Handb. Birds Austr., Vol. I., p. 374, 1865; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 590; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; *id.*, Tab. List Austr. Birds, p. 9, 1888; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 282, 1904; Ashby, Emu, Vol. XVI., p. 234, 1917 (S.A.); S. A. White, *ib.*, Vol. XVIII., p. 22, 1918 (S.A.); *id.*, *ib.*, Vol. XX., p. 127, 1921 (W.A.); Ashby, *ib.*, p. 134 (W.A.).

Acanthiza squamata De Vis, Proc. Roy. Soc. Queensl., Vol. VI., pt. v., p. 248, 1889 [1890]: Herberton, Queensland; Hall, Key Birds Austr., p. 25, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 237, 1901; Mathews, Handl. Birds Austral., p. 75, 1908; Jackson, Emu, Vol. VIII., p. 261, 284, 1909.



GEOBASILEUS REGULOIDES.
(*BUFF-RUMPED TIT*).

GEOBASILEUS CHRYSORRHOS.
(*YELLOW-RUMPED TIT*).

YELLOW-RUMPED TIT.

Acanthiza pallida Milligan, Emu, Vol. III., p. 112, Oct. 1, 1903: Yalgoo, Murchison, West Australia;

Not—

Acanthiza pallida "Temm" Finsch, Notes Leyden Mus., Vol. XX., p. 134, Sept. 1898.

Milligan, Emu, Vol. IV., pp. 3 and 9, 1904.

Acanthiza leighi Grant, Bull. Brit. Orn. Club, Vol. XXIII., p. 73, May 7, 1909: Lithgow, New South Wales.

Acanthiza chrysorrhoa chrysorrhoa Mathews, Nov. Zool., Vol. XVIII., p. 351, 1912.

Acanthiza chrysorrhoa sandlandi Mathews, *ib.*, Jan. 31, 1912: Victoria; *id.*, Austral. Av. Rec., Vol. I., p. 59, 1912.

Acanthiza chrysorrhoa leachi Mathews, *ib.*, Tasmania; *id.*, Austr. Av. Rec., Vol. I., p. 59, 1912.

Acanthiza chrysorrhoa perksi Mathews, *ib.*, South Australia.

Acanthiza chrysorrhoa multi Mathews, *ib.*, Wilson's Inlet, West Australia.

Acanthiza chrysorrhoa pallida Mathews, *ib.*

Acanthiza reguloides squamata Mathews, *ib.*, p. 352.

Acanthiza chrysorrhoa addenda Mathews, Austral. Av. Rec., Vol. I., pt. II, p. 44, April 2, 1912: Port Augusta, South Australia.

Geobasileus chrysorrhous chrysorrhous Mathews, List Birds Austr., p. 218, 1913.

Geobasileus chrysorrhous sandlandi Mathews, *ib.*; Belcher, Birds Geelong, p. 278, 1914.

Geobasileus chrysorrhous leachi Mathews, *ib.*

Geobasileus chrysorrhous perksi Mathews, *ib.*; S. A. White, Emu, Vol. XVI., pp. 13, 75, 1916.

Geobasileus chrysorrhous addendus Mathews, List Birds Austr., p. 218, 1913; S. A. White, Emu, Vol. XIV., p. 189, 1915; *id.*, *ib.*, Vol. XV., p. 160, 1916; Ashby, *ib.*, Vol. XVI., p. 234, 1917.

Geobasileus chrysorrhous multi Mathews, List Birds Austr., p. 218, 1913.

Geobasileus chrysorrhous pallidus Mathews, *ib.*; Mellor, Emu, Vol. XX., p. 139, 1921.

Geobasileus chrysorrhous squamatus Mathews, List Birds Austr., p. 218, 1913.

Geobasileus chrysorrhous normantoni Mathews, Austral. Av. Rec., Vol. II., pt. 4, p. 76, Dec. 29, 1913: Normanton, Gulf of Carpentaria, Queensland.

Geobasileus chrysorrhous ferdinandi Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 90, July 7, 1916; Glen Ferdinand, Musgrave Ranges, Central Australia.

Geobasileus chrysorrhous alexanderi Mathews, Austral. Av. Rec., Vol. IV., pt. 6, p. 137, Aug. 1, 1921: new name for *Acanthiza pallida* Milligan as above.

DISTRIBUTION. Extra-tropical Australia and Tasmania, extending northward to Herberton and the Gulf of Carpentaria on the East, but not yet from North-west Australia.

Adult male. Fore-part of head blackish with white tips to the feathers, which becomes paler and inclining to grey on the hinder portion; mantle, back, scapulars, and upper wing-coverts yellowish-olive; bastard-wing, primary-coverts, and flight-quills hair-brown with pale edges to some of the feathers; rump and upper tail-coverts bright yellow, like the under tail-coverts, sides of body, axillaries, and under wing-coverts; base of tail yellow, terminal portion blackish with whitish tips to the feathers; base of fore-head and throat white tinged with buff, like the

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superciliary streak; sides of face pale grey; the feathers in front of the eye dark in colour and bristly in texture; breast and abdomen yellowish-white; thighs dusky; under-surface of quills hair-brown; lower aspect of tail soot-black with pale tips to the feathers. Eyes white, feet black. Total length 102 mm.; culmen 10, wing 88, tail 38, tarsus 20. Figured. Collected at Glen Ferdinand in Central Australia on the 19th of July, 1914, and is the type of *Geobasileus chrysorrhoa ferdinandi* (bottom left-hand fig.).

Adult female similar to the adult male.

Adult female. Fore-part of head black with white tips to the feathers, becoming paler on the hinder-portion where the feathers are margined with grey; back and wings olive-brown; bastard-wing, primary-coverts, and flight-quills blackish-brown, paler on the outer and inner margins of the last; rump and upper tail-coverts yellow; base of tail also yellow becoming blackish on the terminal portion, with white or smoke-brown at the tips of the feathers; base of fore-head and a line over the eye white; sides of face dusky grey; a dark spot in front of the eye where the feathers have black hair-like tips; throat, breast, abdomen and sides of body pale buff with white bases to the feathers; axillaries and under wing-coverts similar; under tail-coverts white with dark shaft lines; under-surface of flight-quills hair-brown with pale edgings; lower aspect of tail blackish with pale tips to the feathers. Eyes pale brown; bill and feet black. Total length 120 mm.; culmen 9, wing 94, tail 44, tarsus 23. Figured. Collected at Wilson's Inlet, South West Australia, on the 26th of May, 1910, and is the type of *Acanthiza chrysorrhoa multi*.

Immature take on the adult plumage practically from the nest.

Nest. Pear-shaped with side entrance (sometimes with open cup-shaped nest on top). Composed of dried grass woven with the leaves, and lined with fur, feathers, etc., and suspended from the end of a thin bough. Dimensions 8 inches long by 4 wide (Tasmania).

Eggs. Clutch three or four. White; sometimes speckled on the larger end with pale red. 18-19 mm. by 13.

Breeding-season. July to December and even to May.

ON account of its commonness Gould gave little account of the habits of this bird writing: "This well-known species inhabits Tasmania, Western and Southern Australia, and New South Wales, in all of which countries it is a permanent resident. It is generally met with in small companies of from six to ten in number, and is so tame that it may be very closely approached before it will rise, and then it merely flits off to a short distance and alights again; during these short flights the yellow of the rump shows very conspicuously."

The species had been previously described by Quoy and Gaimard, who however wrote very little about its habits.

Mr. Thos. P. Austin has written me from Cobbora, New South Wales: "This well-known little *Acanthiza* is by no means a common bird in this district, met with sparingly in pairs or small flocks in the open forests, but more frequently about dwellings. It has little fear of man, when disturbed it takes a very short flight, conspicuously displaying the yellow feathers on the rump. In the district of Geelong, Victoria, it is one of the most familiar birds, frequenting

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all the large gardens, parks and orchards, also the open forest country, where they breed freely, more especially in the hedges, and drooping branches of any small-leaved shrub or trees.

During the autumn they form into small flocks of from half a dozen to twenty or thirty birds when they are mostly met with feeding upon the ground. The nest is very large for the size of the bird, and differs from that of any other Australian species by having a nest on top of the nest proper. There appears to be great doubt as to what this second nest is really constructed for, some people being of the opinion that it is used by the male for roosting purposes, but personally I doubt this being the case. Although I have many times seen nests built in my garden, and in such places as I pass by daily, I have never yet flushed a bird from the second nest. The nests are rather roughly constructed, composed of dry grass, dead flowering plant stems, roots, wool, spiders' cocoons, etc., the latter being mostly used in a form of decoration, warmly lined with feathers and fur. It is dome-shaped with a small side entrance, over which there is a slight projecting hood. The second nest is much more roughly constructed, being open cup shaped, without any lining. The eggs are usually three or four in number, and may be found at any time from July to the end of January."

Mr. F. E. Howe has sent me from Victoria: "Prefers the open country and here they may often be seen feeding on the ground in small families of from six to a dozen birds. It is difficult to distinguish them from *A. reguloides*, but the note is different. Nests are generally found towards the end of September and are placed in a hanging limb or in a thick bush. The young are born blind, but are sparingly clothed with light grey down. Mouth, yellow: gape, creamy-white. When ready to fly the irides are brown, the yellow of the rump and tail is well defined, the general colour above is light olive-brown, bill and feet dark grey."

Mr. Frank Littler has sent me from Tasmania: "It is no uncommon sight to see the birds assembled in flocks of thirty or forty in winter, running over the ground picking up any stray scraps of food in addition to the usual diet of insects and seeds. They can frequently be seen swarming over the fruit trees in search of codlin moth and other grub and sometimes picking off mussel scale. When flushed off the ground it simply rises and flies a few yards and again alights. When flying a short distance it moves in a jerky wavy manner. The song is a very pretty little run, not loud, but very sweet. It is usually uttered while the birds are feeding together in a flock on the ground: louder notes are uttered when moving on wing from place to place. In winter they commonly occur in the gardens in towns."

Mr. E. J. Christian's notes read: "This is the commonest of the *Acanthizas* in this district, and is a very interesting little bird. It never seems to be quiet

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and can always be heard ; it has a nice little song and is second only to the *A. lineata* in this respect. It has several peculiar habits, chiefly in nesting. It feeds on the ground, in hedges and trees. It is when in flight that its beautiful yellow rump can be seen. The nest is often placed in the loose bark of a tree and is a very rough one: it has no finish to it and appears to be clumsily built. It sometimes builds under the nest of the Magpies (*Gymnorhina leuconota* and *tibicen*) or Crow (*Corvus coronoides*). The nest is placed right on the base of its large neighbours and often the crown of the dome is placed right in the loose sticks, so that only the bottom of the Tit's nest is showing. Sometimes it is built into the side, but I think this is only the case when the nest has been deserted. *Gymnorhina tibicen* does not attack smaller birds, but will not allow larger ones to come near when building. Sometimes the Tit builds a dome-shaped nest, sometimes with a cup-shaped nest on top of this and I have found several with two domed nests and the cup-shaped one on top making in all three nests. In September, 1906, at Little River and the You Yang Range (six miles West of Little River) most of the nests were of the dome shape with the cup-shaped one on top but several had the two domed-shaped nests with the cup-shaped one on top, making three nests. I have always found the Cuckoo's egg, when it has been in the nest, in the top compartment, and not in the bottom. The nest is made of dried grasses, soft bark and cocoons, very roughly made, lined with feathers; all the nests I found in September 1906, at the You Yangs were lined with the feathers of *Platycercus eximius*. They are early breeders, beginning to mate as early as July."

Captain S. A. White has sent me the following notes: "*G. chrysorrhous perksi*. This is a common and widely distributed species. The birds are to be seen moving about in small parties in the ranges and on the plains. They live entirely upon insects and hop about in the most lively manner as they search for insect life in the foliage and behind the bark of trees and on the ground. If protected they become very quiet and will nest close to a dwelling-house and bring out their brood. The nest is beautifully constructed of grass, cobwebs and sometimes wool and well lined with feathers: the nest is generally placed in the drooping bough of a tree or bush, and there are two compartments, one on top of the other, the upper one being generally occupied by the male bird.

"*G. c. addendus*. This is a fairly common bird in the Port Augusta district and is to be seen hopping about on the ground amongst the low blue or saltbush: their habits seem to be the same as those further south."

Mr. J. W. Mellor has also written: "In South Australia this Tit is very common and I have practically seen it everywhere. It was common at the Reedbeds in the earlier days and was found in the more open country hopping over the ground in little parties of four or five. At Lakes Alexandra and Albert

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I noted the nests built in the sticks of the huge nests of the Wedge-tailed Eagle and below that of the Whistling Eagle. I noted this bird near Currie Harbour on King Island, Bass Straits: they were about amongst the trees on a creek near the sea-coast and seemed to have the same habits as the Tasmanian Tit."

Mr. Edwin Ashby's notes read: "The Yellow-rump is almost universally known as the Tom-Tit. In the high New England country a few miles from the Queensland Border in New South Wales a small brightly coloured form was very common and in all suitable country that I have visited in that State, in Victoria, Tasmania and South Australia it has always been one of the commonest birds and in Western Australia in November, 1920, I found it numerous in the wet country that extends from Perth to the extreme South-West corner of the State and again it was common on the 'soaks' in the midst of the 'sand plain' country 130 miles north of Perth. These birds on the Sand Plains seem a slightly smaller race than those further south. This *Geobasileus* feeds by preference on the ground, little companies working together for a while amongst the grass and other vegetation and then all flitting together to another spot which is searched in a similar manner. They are very useful in destroying insects and blight in our gardens near Adelaide. A pair for some years nested in the creepers around the verandah of my house at Blackwood and brought off three broods each season in the same nest commencing repairs to it within two days of the young leaving the nest. Isolated bushes of the prickly Kangaroo Furz (*Acacia armata*) form a very favourite nesting site for this species. The true nest is a covered-in one with a hole in the side but above this is a cup-shaped nest the purpose of which is still unsolved, although many ingenious possible solutions have been suggested."

Mr. Tom Carter's notes read: "The Yellow-rumped Tit is by far the most common and generally distributed species of this genus throughout the South-West, but does not seem to occur in the Gascoyne or North-West Cape districts. Their bulky and often double nests, with side entrances, may be found in almost any tree or bush. Nests of a previous season are often repaired and used again. The breeding season is an extended one and eggs three or four in clutch. Nests with eggs or young are common from July to November."

Milligan writing about the birds of the extreme South-West Australia stated: "These useful little birds were often to be seen in companies about the homestead and in the open lands. They had, I think, already brought out their first broods, for I heard young ones in the nest at South Perth in the middle of winter. Subsequently, in January, I heard young ones in the same nest, and saw the parent birds carrying food."

McClymont wrote from Tasmania: "The Yellow-tail is a gregarious Tit, which prefers grassy hillsides, with a sunny exposure, near the shelter of trees

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or shrubs. In such situations flocks of about twenty systematically work patches of ground, tripping lightly over the sod in quest of seeds or insects. They find these conditions in Impression Bay."

Milligan later wrote from the Stirling Ranges, South-West Australia: "Numerous on good soils. When searching some narrow upland flats on Toll's Creek I discovered a nest in the prickly head of a hakea bush. The latter, with its strong needle leaves pointing and crossing at different angles, only allowed sufficient space in its interior for the true nest. Family councils were evidently held, and it is to be assumed that it was definitely decided that the 'lookout' or 'cock's nest' was indispensable, for the 'lookout' was made an independent structure six inches away, on the left-hand side of the true nest. I have not any doubt that, as the non-construction of the 'lookout' would seriously affect the comfort of paterfamilias *chrysorrhoea*, he, at the family councils, with characteristic masculine negation, strongly advocated its construction. Upon whatever grounds the matter was decided, the fact remains that no better place could have been selected for protection against every natural enemy."

When A. G. Campbell compared Victorian and Tasmanian birds he concluded: "The general colour of the mantle in the Tasmanian bird is lighter, particularly on the back and the primaries, the feathers of the throat, lores and eyebrow, while the tarsus is longer by .1 inch than the mainland bird."

Berney's notes from the Richmond District, North Queensland, read: "This elsewhere familiar Tit is a rare bird in these parts. I have only come across it once or twice, and one of these occasions includes a nest and three eggs. This latter observation was made on the Flinders, 40 miles below Richmond. I suppose this must be its most northern limit, but going south from here I used to see this species and find its two storied nests fairly frequently on Cameron Downs, 40 miles south of Hughenden, while in the Blackall district of the Barcoo it was common."

Batey concludes that at Drouin, Victoria: "From 1846 to 1906, has held its own, but to my mind is not so numerous as it was formerly. It appears to court the society of man, seeing that it is given to nest in garden shrubs. It is famous for destroying aphids and small insects in and out of gardens."

Legge, from Tasmania, confirmed this: "This little bird frequents the shelter provided by the homestead plantations, as also the gardens and shrubberies in the breeding season. So their numbers have increased materially as the exotic shelter in the paddocks increased."

Of the Port Augusta form Captain S. A. White has written: "Mr. G. M. Mathews has named this *A. c. addenda*, and I agree with him that the yellow on rump is of a shade quite different from that of the type of *A. chrysorrhoea*. We found this bird in the Port Augusta district the season before. On this trip

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we met with these dainty little birds on several occasions. They were moving about in quite large parties, although it must have been close to their nesting time. They are lively birds, and hopped over the ground and through the low bushes with great agility, uttering a sharp little note, and at times a pleasing little warble."

Miss Cheney's note reads: "Very common all over the country (Victoria). Nests were found in every possible place—old buckets, straw stacks, pigsties, etc. In an orchard we found two nests, one above the other, forming a complete whole. In the upper nest were four eggs: in the lower, three. Two sets of birds sat on these for a few days; but an inquisitive small child, reaching in to see whether the eggs were hatched, broke two in the upper and one in the lower nest. The birds then deserted their homes."

It may be pointed out that Ramsay recorded *Geobasileus chrysorrhous* from Northern Queensland, writing: "I met with this species about 50 miles inland from Cardwell. There were also several *Acanthizæ* twittering in the scrub close by but I had no opportunity of determining the species."

Also that S. W. Jackson described the nest and eggs of *squamata*, female identified, and remarked that "nest and eggs closely resemble those of *Acanthiza reguloides*" and giving measurements agreeing with those of this species. However *squamata* is now referred to *chrysorrhous* which lays a much larger egg so that apparently another mistake has been made. Probably Jackson found the nest of one of the *Acanthizas* mentioned above by Ramsay and credited it to *squamata* in error.

No subspecies of this form were recognised until I prepared my "Reference List" in 1912 when I admitted six races, five of them being indicated as new. As a matter of fact three forms referable to this species had been previously named as distinct species, *Acanthiza squamata* De Vis in 1890 from Herberton, North Queensland, *Acanthiza pallida* Milligan from Yalgoo, Murchison, West Australia in 1903 and *Acanthiza leighi* Grant from Lithgow, New South Wales in 1909.

No indication of relationship with *chrysorrhoea* was given by De Vis while Milligan explicitly wrote: "The new species is closely allied to *Acanthiza chrysorrhoea* (Gould) [*sic*] and bears in my opinion affinity in the same degree to that species as *A. tenuirostris* (Zietz) does to *A. reguloides* (Vig. and Hors.). It is, in fact, a pallid and miniature form of *A. chrysorrhoea*. I do not declare it to be the Western form of the latter species, as our coastal form in temperate districts much resembles the Eastern one, but rather regard it as the northern and interior one."

Grant named his species through contrasting the Lithgow bright coloured birds with dull ones from a distant locality whereas the type locality was New

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South Wales. I therefore synonymised this with the typical subspecies and differentiated the other forms thus :

Acanthiza chrysorrhoa chrysorrhoa (Quoy and Gaimard).

New South Wales.

Of this *Acanthiza leighi* Grant from Lithgow, New South Wales is a synonym.

Acanthiza chrysorrhoa sandlandi

"Differs from *A. c. chrysorrhoa* in lacking the greenish tinge on the under-surface, the flanks being light fawn. (Blackburn) Victoria."

Victoria.

Acanthiza chrysorrhoa leachi

"Differs from *A. c. sandlandi* in its larger size, longer bill, and having the feathers on throat distinctly fringed with brown. Tasmania."

Tasmania.

Acanthiza chrysorrhoa perksi

"Differs from *A. c. sandlandi* in having the flanks rufous-buff, less spotting on the head, and paler coloration above (Mount Lofty) "

South Australia.

Acanthiza chrysorrhoa multi

"Differs from *A. c. perksi* in having the flanks darker, and more white on the abdomen. Wilson's Inlet, West Australia."

South-West Australia.

Acanthiza chrysorrhoa pallida Milligan.

Very pale throughout from Murchison.

Mid-West Australia.

At that time De Vis *A. squamata* was not recognised as referable to this species, but was attached to *A. reguloides*.

Receipt of specimens from South Australia showed that the Port Augusta form differed from the Mount Lofty birds in "being paler above and whiter on the chest" and these I named:

Acanthiza chrysorrhoa addenda

and these were included in my 1913 "List." I there reinstated the genus *Geobasileus* for this group, and also transferred De Vis *squamata* to this species so that the names then read :

Geobasileus chrysorrhous chrysorrhous Quoy and Gaimard.

Geobasileus chrysorrhous sandlandi Mathews.

Geobasileus chrysorrhous leachi Mathews.

Geobasileus chrysorrhous perksi Mathews.

Geobasileus chrysorrhous addendus Mathews.

Geobasileus chrysorrhous multi Mathews.

Geobasileus chrysorrhous pallidus Milligan.

Geobasileus chrysorrhous squamatus De Vis.

YELLOW-RUMPED TIT.

Since then only two more forms have been added as follows :—

Geobasileus chrysorrhous normantoni Mathews

“ Differs from *G. c. chrysorrhous* in having a longer bill, and in being more yellow underneath and more greenish above. Normanton, Gulf of Carpentaria.”

Queensland.

and

Geobasileus chrysorrhous ferdinandi Mathews.

From the Musgrave Ranges,
Central Australia.

“ Differs from *G. c. addendus* (Mathews) in being paler above and below and the yellow rump more pronounced.”

I have also renamed Milligan's form calling it :

Geobasileus chrysorrhous alexanderi.

GEOBASILEUS REGULOIDES.

BUFF-RUMPED TIT.

(PLATE 452.)

ACANTHIZA REGULOIDES Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 226, Feb. 17, 1827: Parramatta, New South Wales.

Acanthiza reguloides Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 226, 1827; Gould, Synops. Birds Austr., pt. iv., pl. 60, 1838; *id.*, Birds Austr., pt. xxii. (Vol. III., pl. 62), March 1st, 1846; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 299, 1883; Hall, Key Birds Austr., p. 25, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 239, 1901; Mathews, Handl. Birds Austral., p. 76, 1908; Cleland, Emu, Vol. IX., p. 222, 1910 (Food); Ingle, *ib.*, Vol. X., p. 123, 1910 (Vic.); Cleland, *ib.*, Vol. XI., p. 86, 1911 (Food); S. A. White, *ib.*, Vol. XIV., p. 141, 1915 (Vic.); Hanscombe, *ib.*, p. 160, (N.S.W.); Barrett, *ib.*, p. 175, pl. xvii. (Vic.); Littlejohn & Lawrence, *ib.*, Vol. XV., p. 144, 1915; F. E. Howe, *ib.*, Vol. XVI., p. 172, 1917; Cleland, *ib.*, Vol. XVIII., p. 280, 1919; S. A. White, *ib.*, Vol. XIX., p. 219, 1920.

Geobasileus reguloides Cabanis, Mus. Hein, Vol. I., p. 32, note 1851; Gould, Handb. Birds Austr., Vol. I., p. 376, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; *id.*, Tab. List Austr. Birds, p. 9, 1888; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 285, 1901; Campbell, Emu, Vol. XX., p. 241, 1921.

Geobasileus australis North, Austr. Mus. Sp. Cat. No. 1, Vol. I., pt. iv., p. 287, July 11, 1904: Woodside, near Adelaide, South Australia.

Acanthiza australis Mathews, Bull. Brit. Orn. Club, Vol. XXV., p. 34, 1910; *id.*, Emu, Vol. X., pp. 57, 77, 325, 1910-11.

Acanthiza reguloides reguloides Mathews, Nov. Zool., Vol. XVIII., p. 352, 1912.

Acanthiza reguloides connectens Mathews, *ib.*, Jan. 31, 1912: (Ringwood), Victoria, *id.*, Austral. Av. Rec., Vol. I., p. 59, 1912.

Acanthiza reguloides australis Mathews, Nov. Zool., Vol. XVIII., p. 352, 1912.

Geobasileus reguloides reguloides Mathews, List Birds Austr., p. 219, 1913.

Geobasileus reguloides connectens Mathews, *ib.*, Belcher, Birds Geelong, p. 280, 1914.

Geobasileus reguloides australis Mathews, *ib.*

Geobasileus reguloides tarana Mathews, Emu, Vol. XIV., pt. I, p. 60, July 1, 1914: Tarana, New South Wales.

Geobasileus reguloides cobbora Mathews, Austral. Av. Rec., Vol. II., pt. 7, p. 130, Jan. 28, 1915: Cobbora, New South Wales.

BUFF-RUMPED TIT.

Geobasileus reguloides nesa Mathews, Bull. Brit. Orn. Club, Vol. XL., p. 106, March 31, 1920 : Bunya Mts., South Queensland.

DISTRIBUTION. Eastern Australia only; South Australia, Victoria, New South Wales and South Queensland.

Adult. Crown of head, back, and wings olive-green, the feathers on the top of the head abraded and less green than the back; bastard-wing, primary-coverts, centres of greater coverts, and inner portions of flight quills dark brown with pale inner margin to the last; upper tail-coverts and base of tail lemon-yellow; remainder of tail blackish with smoke-white tips to the feathers; fore-part of head and sides of face greyish-white with dusky specklings; throat and breast yellowish-white with dark minute frecklings; abdomen, sides of body, thighs, and under tail-coverts yellow; axillaries and under wing-coverts buffy-white, tinged with yellow; under-surface of flight-quills dark brown with pale edgings; lower aspect of tail similar to its upper-surface. Bill and feet smoky-brown, throat black, eyes pale yellowish-white. Total length 95 mm.; culmen 9, wing 53, tail 39, tarsus 18. Figured. Collected on Bunya Mountains, Queensland, on the 3rd of October, 1919, and is the type of *Geobasileus reguloides nesa* (top left-hand figure). The sexes are alike.

Adult male. General colour above olive-green with a greyish tinge, including the hinder-crown, hind-neck, sides of neck, back and scapulars, upper wing-coverts and outer aspect of the wings; inner webs of flight-quills dark brown edged with buffy-white; upper tail-coverts and base of tail buff; terminal portion of tail blackish with smoke-grey tips to the feathers; fore-part of head tinged with rufous and having dark fringes to the feathers it imparts a scalloped appearance; sides of face olive with pale shaft-lines to the feathers; rictal bristles feebly developed; throat and fore-neck whitish minutely speckled with dark markings; breast, abdomen, sides of body, thighs, and under tail-coverts yellowish-buff; axillaries, under wing-coverts and inner edges of quills below pale buff, remainder of the quill-lining dark brown; lower aspect of tail very similar to its upper-surface. Bill slate, feet brown, eyes white. Total length 99 mm.; culmen 7, wing 53, tail 39, tarsus 17. Figured. Collected at Ringwood, Victoria, on the 27th of May, 1911, and is the type of *Acanthiza reguloides connectens*.

Adult female similar to the adult male.

Nest. Dome-shaped with side opening (about one inch wide) composed of grass and bark held together with spiders' web. Lined with feathers or fur. Measurements $4\frac{1}{2}$ inches long by $3\frac{1}{2}$ wide.

Eggs. Clutch, three or four, white, with reddish spots, especially on the larger end, 17 mm. by 14.

Breeding-season. August to December.

THE only note given at the introduction of this new species by Vigors and Horsfield reads: "This species was met with by Mr. Caley in the same situation as the last (*A. nana*). Some specimens also in the collection were brought home by Mr. Brown from Port Jackson, where he obtained them in August, 1803."

Gould added: "Many of the actions of this little bird offer a close resemblance to those of the *Geobasileus chrysorrhous*, like that species, it moves about in small flocks of from eight to fifteen in number; when flushed shows the yellow or buff of the rump very conspicuously; always spreads its tail while

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flying; flits along with a jerking motion, and is very tame. It is extremely common in South Australia, where I observed it in every part of the country I visited; in New South Wales I found it in the interior beyond the ranges, and also on the bare ridges between Patrick's Plains and the Liverpool Range. I did not meet with it in Tasmania. It evinces a decided preference for the open country or hills slightly covered with brush, where it can feed on the ground and fly to the low shrub-like trees when disturbed. I have also seen it busily engaged among the branches, apparently in search of insects, in the pursuit of which, like the other members of the genus, it displays unusual alertness and address."

Mr. Edwin Ashby has written: "In the Blue Mountains, New South Wales, in the upper parts of the ranges I found this a common bird. In South Australia the darker race, named from my specimens by Mr. North *australis*, in the Mount Lofty Ranges is almost confined to the zone of upper hills where the Stringy Bark (*Eucalyptus obliqua*) grows, the birds moving about in small flocks amongst the tree tops and in the bushes."

Mr. F. E. Howe's notes from Victoria: "Is also very numerous, but confines itself to the thick scrubs where it obtains its food mostly on the ground. Two nests placed low in the grass tussocks, another on a fallen branch and another placed flat on the ground in thick scrub were observed each with four eggs."

Mr. Thos. P. Austin's notes from Cobbora, New South Wales, read: "Only found in the thick scrubs in this district, usually met with feeding upon the ground in small flocks of from half a dozen to twenty birds; when disturbed they take a very short flight, generally only of a few yards, either settling upon the ground again or in some low bush, seldom have I seen them more than ten feet from the ground. In life it can easily be mistaken for *A. chrysorrhoa*. Although I have often seen the latter just on the edge of the scrubs where the present species abounds, I have never noticed them actually associated, but *A. pyrrhopygia* is mostly observed with the Buff-rumped. The nests are rather roughly made, dome-shaped structures sometimes placed almost on the ground in a tussock of flowering grass bush, but more often between a piece of loose hanging bark and the trunk of a tree, or in a shallow hollow or a niche in a tree, and are composed of strips of soft dry bark, dry plant stems and grass, warmly lined with fur and feathers. The clutch is usually 3 or 4, and the principal breeding months are September and October."

Mr. J. W. Mellor has sent me: "This little bird is found in South Australia but is not so plentiful as the Yellow-rumped Tit. I have noted it about Lake Albert and the Coorong in the south-east of South Australia. It was there in the tea tree and sheoak country, keeping to the boughs, but now and again settling on the ground to hop about in search of insect food."

BUFF-RUMPED TIT.

Mr. A. G. Campbell writes : " In vicinity of Melbourne always nests in a tussock of grass or on the side of a bank. Common about the Grampians."

When Cleland investigated the numbers of the birds in the Pilliga Scrub, New South Wales, he recorded : " Buff-tailed Tit Warbler. A few birds—13 in all counted, but there were evidently considerably more—were seen in the more open forest country during the trip. Bill, pharynx and legs black : iris whitish with a pale yellow tint. No entozoa detected in the one bird shot. The reddish-brown eyed *Acanthizas* seem to form a natural group separated from those with whitish irides, such as *A. chrysorrhoa*, *A. reguloides*, and *A. uropygialis*."

The restricted range of this minute species did not suggest much subspecific differentiation, but as a matter of fact comparatively it shows marked distinctions and at the present minute I allow six subspecies in its limited distribution. The species was described from New South Wales and when North drew up his account of Nests and Eggs he wrote his ideas of subspecies, the most noteworthy pronouncement of that date. I therefore transcribe this nearly twenty-year old recognition of Australian subspecies in North's words : " There is a variation in the depth of colour in examples of *G. reguloides* obtained from different parts of the continent. Specimens collected by Mr. George Masters at Gayndah, on the Burnett River, Queensland, have only a slight ochraceous tinge to the yellow rump and upper tail-coverts, and the breast, flanks and abdomen are pale yellow. Examples collected by Mr. Edwin Ashby at Upper Sturt, Woodside, and Callington, in the hills south-east of Adelaide, are much darker than the New South Wales specimens, and may be distinguished from typical examples of *G. reguloides* by the richer and deeper ochraceous-buff rump, upper tail-coverts, basal portion and tips of tail-feathers, and, in two specimens, the more distinct rufous forehead and deeper ochraceous-buff under-surface. . . . Should it be necessary to distinguish the latter darker race, I would suggest the name *G. australis* . . . I particularly wish to point out that I regard this darker coloured race from South Australia only as a geographical variation of the typical form of *G. reguloides*. Likewise, also, all the races described in this catalogue, for which I have proposed names, and which appear in the text of the letterpress only, and not as head-lines to a species. They are, in my opinion, however, far more entitled to full specific recognition than many others that are recognised as such, say, for instance, *A. apicalis* and *A. diemenensis*, which are only really geographical variations of *A. pusilla*, and not distinct species. . . . Trinomial nomenclature has not been adopted by Australian ornithologists. . . . It is useful, however, and has this advantage : one knows at a glance that the added trinomial refers only to a geographical variation of a typical form ; whereas in binomial nomenclature one may possibly discover, after the loss of much time in searching out an

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original description, that the supposed specific value does not exist, and that a name has been given to a form that very often does not merit even subspecific recognition."

This last statement is very true and is now accepted by everyone.

When I drew up my "Reference List" in 1912 I used the trinomial foreshadowed by North and added a third form thus, but incorrectly using De Vis' *squamata* for the Northern Queensland form, also indicated by North:—

Acanthiza reguloides reguloides Vigors and Horsfield.

New South Wales.

Acanthiza reguloides squamata De Vis.

North Queensland.

Acanthiza reguloides connectens Mathews

"Differs from *A. r. reguloides* in its greyer coloration above, especially on the head, the under-coloration approximating more to the typical form than to the South Australian form (Ringwood) Victoria."

Victoria.

Acanthiza reguloides australis (North)

South Australia.

In my "List" in 1913 I utilised the genus name *Geobasileus* and removing *squamata* De Vis to its proper place, allowed three subspecies only, but a little later when I was in Australia I separated the bird from Tarana, New South Wales, as

Geobasileus reguloides tarana

"Differs from *G. r. reguloides* in having a light, not dark, buff rump. It is also lighter above."

Upon my return I re-examined my own series and added

Geobasileus reguloides cobbora

"Differs from *G. r. reguloides* in being greyish above with just a tinge of green : the under-surface slightly buff."

Cobbora, New South Wales.

I recently named

Geobasileus reguloides nesa

"Differs from *G. r. squamata* (De Vis) in being paler generally, the under-surface only tinged with yellow, and the rump being only pale buff."

Bunya Mountains, South Queensland.

Campbell has added that a skin from the Dawson River, "compared with typical *reguloides*, has more yellowish upper tail-coverts, and is more yellowish than buff on the under-surface, notably breast and abdomen. Iris pale yellow; bill and feet dark brown. If this description agrees with Mr. Mathews' skin, his new name, *nesa*, may be acceptable for the variety."

GEOBASILEUS HEDLEYI.

DARK BROWN TIT.

(PLATE 453, two right-hand figs.).

ACANTHIZA IREDALEI HEDLEYI Mathews, Austral. Av. Rec., Vol. I., pt. 3, p. 78, June 28, 1912: Meningie, South Australia.

Acanthiza iredalei hedleyi Mathews, Austral. Av. Rec., Vol. I., p. 78, 1912; S. A. White, Emu, Vol. XII., p. 184, 1913.

Acanthiza rosinae Mathews, Austral. Av. Rec., Vol. II., pt. 1., p. 9, Aug. 2, 1913: near Adelaide, South Australia.

Geobasileus hedleyi Mathews, List Birds Austr., p. 219, 1913; F. E. Howe, Emu, Vol. XVI., p. 180, 1917.

Geobasileus hedleyi hedleyi Mathews, List Birds Austr., p. 219, 1913.

Geobasileus hedleyi rosinae Mathews, *id.*; F. E. Parsons, South Austr. Ornith., Vol. IV., p. 51, 1919; S. A. White, Emu, Vol. XIX., p. 81, pl. XIX., 1919; Campbell, *id.*, p. 161 (error); Mathews, *id.*, Vol. XX., p. 31, 1920.

DISTRIBUTION. Samphire Country in Southern South Australia.

Adult male. General colour of the upper-surface dull olive-green including the hinder-crown, nape, back, scapulars, and outer aspect of wings; the centres of the feathers of the bastard-wing, greater coverts, and primary-coverts dark brown, flight-quills also dark brown with whitish inner edges; upper tail-coverts sulphur-yellow; tail, blackish with obsolete cross-bars and white, or smoke-grey tips to the feathers; fore-part of head dark brown with whitish margins to the feathers, which gives a scaled appearance; sides of the face olive-green speckled with greyish-white; base of fore-head and throat greyish-white; breast, sides of body, abdomen, thighs, under tail-coverts, axillaries, and under wing-coverts ochreous-yellow; under-surface of flight-quills dark brown with pale edges; lower aspect of tail blackish with whitish tips to the feathers. Eyes light yellow, feet and bill black. Total length 90 mm.; culmen 8, wing 54, tail 42, tarsus 19. Figured. Collected on the Heath Country near Meningie, South Australia, on the 28th of February, 1912, and is the type of *Geobasileus hedleyi* (upper figure).

Adult female similar to the adult male.

Adult male. General colour of the upper-surface dull olive-green, including the top of the head, back, and wings; bastard-wing, primary-coverts, centre of major-coverts, and inner webs of flight-quills blackish-brown; tail also blackish-brown becoming paler at the tip and on the outermost feather on each side, the three outer feathers

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marked with white on the inner webs near the tips ; upper and under tail-coverts yellowish-buff, like the middle of the abdomen and vent ; fore-part of head blackish-brown with pale margins to the feathers, which imparts a scaled appearance ; lores and sides of face dusky with whitish shaft-lines and tips to the feathers ; throat and middle of breast greyish-white with dark bases to the feathers ; sides of neck and sides of body yellowish olive-green, becoming darker on the thighs ; under wing-coverts and axillaries greyish-white ; under-surface of flight-quills dark brown with pale margins ; lower aspect of tail blackish-brown, becoming paler at the tip. Eyes white, feet brownish, bill black. Total length 98 mm. ; culmen 8, wing 51, tail 42, tarsus 20. Figured. Collected 20 miles north of Adelaide, South Australia, on the 24th of April, 1913, and is the type of *Acanthiza rosinae*.

Adult female similar to the adult male.

Nest and eggs not described.

CAPTAIN S. A. WHITE has written me : "*G. h. rosinae*. At first one wonders why this bird should have remained so near the City of Adelaide and yet be undiscovered so long, but when the bird's habits are taken into consideration it is easily seen how it was overlooked. I found them fairly plentiful along the coastline some twenty miles north of Adelaide. The country is situated inside a deep fringe of Mangroves and at high tide is partly covered in salt water which follows inland many small watercourses. Along these thick samphire bushes grow. While making my way along one of these watercourses I was surprised to see several small dark *Acanthizas* dart from one bush to another. Directly I secured one I knew it was a new bird. They were extremely shy and kept very close to cover, in fact one could trample the low bushes down before they would come out. They live entirely upon insects. I have not yet been able to discover their nest. Mr. F. Parsons of Adelaide has shown me a specimen taken by him in the samphire country on Yorke's Peninsula which I have every reason to believe is the same species."

Mr. Edwin Ashby states : "This little Tit is not uncommon in the Marsh Samphire Flats throughout this State. Near St. Kilda on the marshy flats it is easily flushed but keeps entirely to the Samphire (*Salicornia*) where it is growing about two feet high. The birds are very quiet and rather shy."

Captain White's published account is more complete than the above note and I may add : "It is common to see small parties of these birds, from five to six up to twenty or more, in the winter months, diligently searching amongst the samphire bushes or hopping smartly over the damp soil in search of insect life. I found them easily alarmed, and able to avoid pursuit by splitting up into ones and twos and doubling back in the opposite direction to that in which they were travelling. When alighting they invariably disappeared in the bushes. They pair in the late spring. *Flight*.—Weak and never sustained for long. When feeding and moving from one place to another a slow jerky flight of a few

DARK BROWN TIT.

yards is taken, and the bird dwells for a moment on hovering wings before it drops into the low bush, and immediately disappears. *Food*.—Insect life constitutes two-thirds of the food, small seeds and vegetable diet making up the balance. Upon examination of one bird's stomach it was found to contain eight large green bugs, as well as three ground-beetles and some small seeds. *Note*.—When feeding, a short, low, chirping sound is made, but when resting in the low bush the bird will give a very pleasing half-twittering and half-warbling song, not of long duration, and very low and soft. When alarmed the bird becomes silent."

A little earlier Mr. F. E. Parsons had given a similar account in *The South Australian Ornithologist* which agrees very closely with the one above quoted.

When I first received this new bird I described it as :

Acanthiza iredalei hedleyi.

"Differs from *A. i. morgani* in having a much lighter rump and darker upper-surface. Meningie, South Australia."

A little later Captain S. A. White sent me a new species of *Acanthiza*, which I described and named :

Acanthiza rosinae

writing : "The type of Mr. North's *Geobasileus australis*, collected at Woodside, South Australia, by Mr. Edwin Ashby, is now before me. The above new species was collected by Captain S. A. White, about twenty miles north of Adelaide. It differs from *A. r. australis* North, in being much darker above, having no rufous on the forehead, and in having a very narrow buff rump : the throat has the feathers white, fringed with brown, rest of under-surface brown, lighter down the middle of the belly."

In the preparation of my 1913 "List" I recognised the affinities of these two birds and the distinction from *A. iredalei* and placed them in *Geobasileus*, thus :

Geobasileus hedleyi hedleyi

South-east of South Australia.

Geobasileus hedleyi rosinae

South Australia (near Adelaide).

When F. E. Howe wrote up his "Review of the *Acanthizæ*," a most excellent account, he records : "*Geobasileus hedleyi* Mathews occurs in the South-east of South Australia and a subspecies (*G. h. rosinae*) near Adelaide, South Australia, but of this species ornithologists in Australia know little or nothing."

Thereupon Captain S. A. White published a coloured plate and account of its habits, apologising for previous non-publication as he had sent his field-notes to me for this Work.

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Although Captain White was surely competent to identify a form collected by himself and named by me after Mrs. White, in the next number of the *Emu* was an account by a writer who absolutely confused everybody, as he stated that the bird figured was a different species. As nearly every statement made by this writer was inaccurate and as I have pointed out a few of his mistakes already no further reference need be made to his unfortunate intervention. I there stated that these Acanthizoid forms were most difficult even to the accurate worker and I now emphasize that statement. The differences are probably very easily seen in life but not noticeable without great care in skins.

GENUS—PYRRHOLÆMUS.

PYRRHOLÆMUS Gould, Proc. Zool. Soc. (Lond.) 1840,
p. 173, July, 1841. Type (by monotypy) *P. brunneus* Gould.

SMALL birds with medium slender bills, medium rounded wings, long tail and long slender legs and small feet.

The bill is short, not as long as the head, the culmen slightly arched but nearly straight, the tip only slightly decurved and showing no posterior notch : laterally compressed with little basal expansion ; the nasal groove is about one-third the length of the bill, the linear apertures placed in a slanting, not horizontal position ; the nasal bristles are noteworthy and the rictal bristles about six in number and fairly strong : lower mandible slender, interramal space small and feathered.

The wing is rounded, with the third, fourth, fifth and sixth primaries sub-equal and longest, the second less than the seventh, about equal to the eighth and secondaries : the first primary short, more than half the length of the second but about half the length of the third.

The tail long and square, very little rounded.

The legs are long and slender, booted in front and bilaminate behind : the feet small, the hind-toe and claw about equal to the middle toe and claw, all claws short and round ; outer and inner toes sub-equal and with claw about equal to the middle toe without claw.

This species is not of *Sericornine* affinity, but appears to be more closely allied to *Hylacola*.

PYRRHOLÆMUS BRUNNEUS.

RED-THROAT.

(PLATE 453, two left-hand figures).

PYRRHOLÆMUS BRUNNEUS Gould, Proc. Zool. Soc. (Lond.), 1840, p. 173, July 1841 : Belts of the Murray, South Australia.

Pyrrholæmus brunneus Gould, Proc. Zool. Soc. (Lond.), 1840, p. 173, 1841; *id.*, Birds Austr., pt. xvii. (Vol. III., pl. 68), Dec. 1, 1844; *id.*, Handb. Birds Austr., Vol. I., p. 384, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; *id.*, Tab. List Austr. Birds, p. 9, 1888; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 242, 1901; North Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 307, 1904; Macdonald, Emu, Vol. VI., p. 141, 1907; Whitlock, *ib.*, Vol. IX., p. 201, 1910 (W.A.); Orton & Sandland, *ib.*, Vol. XIII., p. 79, 1913 (W.A.); S. A. White, *ib.*, Vol. XIII., pp. 27, 127, 1913-14 (S.A.); *id.*, *ib.*, Vol. XV., p. 160, 1916; *id.*, *ib.*, Vol. XVIII., p. 22, 1918; *id.*, Trans. Roy. Soc. South Austr., Vol. XXXVIII., p. 431, Dec. 1914; Vol. XXXIX., p. 753, Dec. 1915; Vol. XLI., p. 459, Dec. 24, 1917; Cheney, Emu, Vol. XIV., p. 210, 1915 (Vic.); Ashby, *ib.*, Vol. XVI., p. 234, 1917 (S.A.); A. S. Le Souëf, *ib.*, Vol. XX., p. 142, 1921 (W.A.).

Acanthiza brunnea Gray, Genera Birds, Vol. I, p. 189, 1848.

Sericornis brunnea Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 302, 1883; Hall, Key Birds Austr., p. 26, 1899; Carter, Emu, Vol. III., p. 37, 1903 (W.A.); Milligan, *ib.*, p. 222, 1904 (W.A.); *id.*, *ib.*, Vol. IV., p. 9, 1904 (W.A.); Mathews, Handl. Birds Austral., p. 76, 1908; Howe, Emu, Vol. VIII., p. 133, 1909 (Vic.); Crossmann, *ib.*, Vol. IX., p. 88 (W.A.); Howe, *ib.*, p. 231, 1910 (Vic.); Campbell, *ib.*, Vol. X., p. 36 (Vic.); Cleland, *ib.*, Vol. XII., p. 12, 1912 (Food, Queensland); Wilson, *ib.*, p. 35 (Vic.); S. A. White, *ib.*, p. 128, 1913 (S.A.).

Sericornis brunnea brunnea Mathews, Nov. Zool., Vol. XVIII., p. 353, 1912.

Sericornis brunnea pallescens Mathews, *ib.*, Jan. 31, 1912 : Bore Well, West Australia.

Pyrrholæmus brunneus brunneus Mathews, List Birds Austr., p. 219, 1913; S. A. White, Emu, Vol. XIV., p. 189, 1915 (S.A.).

Pyrrholæmus brunneus pallescens Mathews, List Birds Austr., p. 219, 1913; Carter, Ibis, 1921, p. 60.

DISTRIBUTION. Victorian Mallee, South Australia, Central Australia, West Australia, Queensland.

RED-THROAT.

Adult male. Crown of head, nape, and hind-neck greyish-brown; entire back, wings, and middle tail-feathers dusky brown with a tinge of grey on the outer aspect of wings; outer tail-feathers darker than the middle ones and broadly tipped with white; sides of face grey with dark bases to the feathers; eyelids whitish; lores buff with black hair-like tips to the feathers; chin and throat pale rufous; breast and sides of breast ash-grey; sides of body buff tinged with grey; abdomen and under tail-coverts cream-white more or less tinged with buff; axillaries and under wing-coverts similar; under-surface of flight-quills hair-brown, slightly paler on the margins; lower aspect of tail blackish-brown broadly tipped with white. Eyes dark red, feet brown, bill horn. Total length 122 mm.; culmen 10, wing 57, tail 50, tarsus 22. Figured. Collected at Bell-bird Bore, Mallee, Victoria, on the 24th of September, 1913.

Adult female. General colour above dusky-brown, including the top of the head, back, and wings, with a tinge of grey on the sides of the neck and mantle; upper tail-coverts and middle tail-feathers similar to the back but rather darker, outer tail-feathers blackish broadly tipped with white; fore-part of head blackish-brown with pale margins to the feathers; throat and lores pale buff with black hair-like tips to the feathers of the latter; eye-ring white; fore-neck, breast, and sides of breast ash-grey; middle of abdomen white; thighs dusky; flanks and under tail-coverts buff; axillaries and under wing-coverts cream colour; under-surface of flight-quills pale brown with slightly paler edges; lower aspect of tail blackish broadly tipped with white. Feet ashy-grey, bill black. Total length 114 mm.; culmen 9, wing 56, tail 48, tarsus 21. Figured. Collected 90 miles west of Todmorden, South Australia, on the 8th of July, 1914.

The female differs from the male in having the throat ashy-grey and the chin white.

Immature take on the adult plumage practically from the nest.

Immature. General colour of the upper-surface dark smoke-brown including the top of the head, back and wings; the feathers of the bastard-wing fringed with whitish; inner webs of flight-quills dark brown; tail-feathers blackish-brown, the lateral ones tipped with white; sides of face, chin, and throat earth-grey; breast, abdomen, and under wing-coverts cream-white; under tail-coverts buff; under-surface of flight-quills hair-brown; lower aspect of tail similar to its upper-surface but much paler. Eyes deep brown, feet grey, bill grey. Collected at Lake Way, West Australia, on the 17th of August, 1909.

Nest. Round with side entrance. Composed of bark-fibre and grass mixed together and sometimes lined with feathers. Measurement 4 inches across.

Eggs. Clutch three or four. Ground-colour differing shades of brown, with larger end darker. 19-20 mm. by 15-16.

Breeding-season. August to November; March, April.

THIS new genus and species were discriminated by Gould who discovered it, and his notes read: "I found this bird tolerably abundant in the Belts of the Murray, about forty miles to the northward of Lake Alexandrina, where it gave a decided preference to low-stunted bushes and fallen trunks of trees overgrown with herbage, under which it secreted itself: it sometimes rose to the top of a bush to sing, pouring forth a melody equal to any of the smaller birds of Australia, which must render it a general favourite when that portion

THE BIRDS OF AUSTRALIA.

of the country becomes colonized. It passes much of its time on the ground, hopping about with great celerity, and with its tail elevated considerably above the level of its back. Specimens were also obtained by Gilbert in Western Australia, from whose notes I learn that it is there an inhabitant of the under-wood and the thickest scrub ; and that " it possesses a very sweet and melodious song, which it generally utters while perched on the extreme topmost branch of a small scrubby tree, and having repeated it two or three times, dives down into the impenetrable bush. While feeding it utters a weak, piping, call-like note. I never saw it fairly on the wing, for it seems averse to flying, but generally prefers creeping from bush to bush, and even if closely hunted merely flits a few yards."

Captain S. A. White states : " I have found this bird in a variety of situations but it is a great lover of the dry country, where it frequents the salt-bush plains and the low scrub alike. Its very sweet song is a great feature of that lone land. It is a naturally shy bird, but very local and from my experience they keep within a thousand yards radius for a long time. They breed in September and October in the northern country."

Mr. A. G. Campbell sent me some time ago an account which may be published although the Mallee is now more familiar to the ears of ornithologists than it was when this was written and I find that many extra-Australian workers are still ignorant of the exact nature of this term : " In the Mallee, a remarkable area of dwarf vegetation occupying the dry north-western corner of Victoria, (and adjacent portions of South Australia and New South Wales) this species lives. Unlike other members of the genus [it was then classed in *Sericornis*], the male bird has a melodious song, which it pours forth after the manner of a *Hylacola* from the topmost twig of some convenient bush. If disturbed it darts down into the cover but reappears a few yards further on. The species is only found in better class Mallee, that is, in the good areas which run in belts of varying width where a stronger soil supports a rich growth of under-scrub—acacias, dwarf casuarens, tea trees and many plants characteristic of hot areas, opening out occasionally into rich grass plains or thick pine (*Callitris*) ridges. In such country are found *Malurus melanotus*, *Ptilotis*, *Glyciphila albifrons* and *Myzomela nigra*. In great contrast is this class of country to the real desert or sandy Mallee where there is no vegetation but dwarf mallee eucalypts of two or three kinds and the only bird life *Oreoica cristata*, *Pardalotus xanthopygus*, *Lapoa ocellata* and perhaps *Drymodes brunneipygius*. These four species, of course, are found throughout all classes of Mallee but they are the ones that venture farthest into the desert. In fact no part is seemingly too poor that the two first mentioned cannot make a home therein."

RED-THROAT.

Mr. J. W. Mellor has written me: "I have seen these birds on the open salt bush and blue bush country around Yunta district in South Australia on railway line between Petersburg and Broken Hill. They were seen singly and uttered a pleasing little note which attracted attention immediately: they had a peculiar way of suddenly popping up on the top of a blue bush, to repeat the performance. I was too early for their nesting, but doubtless they breed well in the district."

Mr. Sandland wrote: "Fairly numerous at Balah, South Australia. Have only found two nests and then only by flushing the bird. Has an extremely pleasing song and were it not for this it would hardly be noticed as it is a shy bird."

Captain S. A. White has recorded from the Flinders Range, South Australia: "There were some very interesting birds. One was the Redthroat. It was very shy, and once lost in the low bush hard to see again. When not alarmed or suspicious of danger their movements were quick, but elegant. They passed over open spaces between the bushes very much after the manner of Blue Wrens, often carrying their tails erect. The male would often mount to the top of a bush and pour forth a short but pleasing song. At the breaking of a twig or the sight of an enemy they were off in a flash, passing along the ground like mice from bush to bush. But despite their timidity, their curiosity was at times stronger, and they could invariably be called out of hiding by imitating the feeble call of a wounded bird. They seemed to be fairly plentiful on the sides of the ranges, about 400 to 500 feet, but we did not meet with them out on the salt and blue bush plains.

Later from the Gawler Ranges Captain White reported: "The Redthroat is distributed throughout the ranges. We found it out on the salt bush plains as well as in the hill country. Its shy habits and mouse-like movements when alarmed are very consistent wherever found and are identical with the *Sericornis*."

Still later giving the result of the Lower Murray Excursion Captain White noted: "Observed this bird for the first time on the trip in the low bush between Lake Bonney and the river. They were singing most sweetly. A specimen procured shows much less reddish marking on the throat."

Then from the Musgrave and Everard Ranges Expedition Captain White observed: "In many localities it was very plentiful: it seemed to frequent low scrub on the western or south-western sides of the ranges."

A. S. Souëf observed that at Ooldea near the eastern edge of the Nullarbor Plain that "this sweet songster was numerous in the open scrub country. Some of them were very tame and approached to within a foot of the observer," somewhat contrary to their general habits according to Captain White.

THE BIRDS OF AUSTRALIA.

Mr. Edwin Ashby sent me a note: "I found this bird very common at Callion, West Australia. At sunrise directly the first rays of the sun shone amongst the bushes a regular orchestra of song filled the secluded shallow valleys. Sometimes I could count as many as five birds singing their sweet, somewhat gentle song within a few yards of one another. I have received specimens from Lake Gillies, South Australia."

Mr. Tom Carter has written: "In the region of the North-West Cape this species is not uncommon in the scrub among coast hills and also inland. It is very quiet and unobtrusive in its habits, and would not be much noticed were it not for its beautiful song."

Milligan, writing from the Wongan Hills, West Australia, stated: "A very common bird everywhere in the Hills was *Sericornis (Pyrrholæmus) brunnea*. During the first morning's outing in low scrubs I met with a family of them. The whole brood, headed by the parent birds, passed where I stood, hopping swiftly along the ground and through the undergrowth, each uttering a subdued, plaintive, single note, which produced a singular effect. The song of the adult when not *en famille* is quite different, and consists of a series of loud, cheery notes frequently uttered whilst hopping through the scrubs. They enlivened the hill lands very much with their distinctive song. We found, too, that they were not above borrowing their neighbour's notes. One morning, Mr. Conigrave and I followed what we took to be a *Calamanthus*, or Field Lark, through the dwarf scrubs on the hillside. After some time we espied the bird sought for sitting at the foot of a small shrub and uttering the same notes. My companion shot him, and on picking him up found him to be, not the species his song denoted, but *Sericornis brunnea*. The Wongan Hills bird is slightly smaller than those from the north-west and the interior, and the throat patch is much less extensive and is a deep rusty red."

Whitlock, writing of the birds of the East Murchison, reported: "Generally distributed throughout the district. It breeds early. The young were on the wing second week in August. I obtained two typical clutches of eggs. These nests remained empty so long that I quite gave them up, thinking they had been robbed by the blacks. One was in a saltbush, the other in tea-tree scrub. This species is a splendid mimic, and reproduces the songs of all the surrounding birds. In passing, it may be worth recording that on one occasion I took eggs from a nest built in the burrow of a lizard and quite under ground. A black fellow in front of me walked right over the nest, flushing the female in so doing."

Mr. Tom Carter has written: "Pallid Redthroats were common in the scrub around Carnarvon, and north of there. Recently fledged young were noted on 26th August, 1911. These birds make a peculiar fluttering noise with their wings when flying."

RED-THROAT.

Although this bird was known to range from East to West Australia no forms were distinguished until I admitted in my "Reference List" in 1912, two only :

Sericornis brunnea brunnea (Gould).

New South Wales, Victoria, South Australia.

and

Sericornis brunnea pallescens Mathews.

"Differs from *S. b. brunnea* in its paler upper-surface coloration and its almost white under-surface. Bore Well, West Australia."

West Australia.

I reinstated the correct genus name *Pyrrolaemus* in my 1913 "List" but only recognised the two above mentioned as :

Pyrrolaemus brunneus brunneus Gould.

East Australia.

and

Pyrrolaemus brunneus pallescens (Mathews).

West Australia.

No new forms have since been named although Milligan pointed out that two forms appeared different in West Australia.

Apparently the pallid form which I named from Bore Well extends to the North West and the Wongan Hill bird differs as Milligan wrote.

The Wongan Hills form may be called :

Pyrrolaemus brunneus milligani subsp. nov.

and I note the flanks are brownish, the upper-surface is browner above and the throat is darker.

However from the Southern Cross, Kalgoorlie, etc. there comes a very distinct unexpected form as it is much darker. I name it

Pyrrolaemus brunneus kalgoorlie subsp. nov.

This form is darker-brownish above, has a darker red throat, a darker grey breast and darker brown flanks and is also larger.

There are probably many subspecies in the East also, as Captain S. A. White has noted the Lower Murray bird differed, but he did not say with which of his birds he compared it. Of course the Lower Murray bird was the typical bird and I now name the Central Australian bird :

Pyrrolaemus brunneus centra subsp. nov.

as being lighter above and the throat a deeper red.

GENUS—NEOSERICORNIS.

NEOSERICORNIS Mathews, Nov. Zool., Vol.

XVIII., p. 353, Jan. 31, 1912. Type

(by monotypy) *Muscicapa lathamii* Stephens.

WHEN I prepared my "Reference List" I was following a genus-lumping policy which proved unsatisfactory, and this was the first instance of revolt. I was so dubious of the association of these birds that I separated the present species with a new generic name although I did not then use it. With further knowledge I am surprised that it was ever included in the genus *Sericornis* as it differs so much from all the other species. The bird is larger and the head appears to be differently shaped even in the skins so that it probably belongs to another series altogether. Compared with *Sericornis* the bird is larger throughout, the bill is shorter and the coloration is more pronounced. In detail the bill is shorter than the head, less compressed than in *Sericornis*, practically no hook at tip: the nasal groove is nearly one half the length of the bill, the nostrils linear, the culmen ridge is little arched and the under mandible is comparatively strong: the half dozen rictal bristles are pronounced.

The wing is rounded with the fourth, fifth and sixth primaries subequal and longest, the seventh very little less, and the third less than the seventh but longer than the eighth: the second much less than the tenth primary which is equalled by the secondaries: the first primary a little longer than half the second.

The tail is long and square.

The legs are long, the front of the tarsus booted but scutes can sometimes be obscurely traced: the hind part bilaminate: the feet are small, the hind-toe and claw as long as the middle toe and claw, the inner equal to the outer and with claw equal to the middle toe alone, all claws short and rounded.

Order PASSERIFORMES.

No. 543.

Family SYLVIIDÆ.

NEOSERICORNIS LATHAMI.

YELLOW-THROATED SCRUB WREN.

(PLATE 453.)

MUSCICAPA LATHAMI Stephens in Shaw's Gen. Zool., Vol. X., p. 336, Sept. 1817: New South Wales: new name for *Muscicapæ barbata* Latham 1801=Sydney.

Muscicapa barbata Latham, Suppl. Index Ornith., p. Li., after May 30th, 1801: New South Wales, based on Watling Drawing, No. 180.

Not of Latham, Index Ornith., Vol. II., p. 488, 1790.

Muscicapa lathami Stephens in Shaw's Gen. Zool., Vol. X., p. 336, 1817.

*Sericornis citreogularis** Gould, Synops. Birds Austr., pt. iv. (pl. 58, f. 4), April 1st, 1838: New South Wales; *id.*, Proc. Zool. Soc. (Lond.) 1837 p. 133, Dec. 1838; *id.*, Birds Austr., pt. xiv. (Vol. III., pl. 46), March 1, 1844; *id.*, Handb. Birds Austr., Vol. I., p. 354, 1865; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 590; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 302, 1883; Ramsay, Tab. List Austr. Birds, p. 9, 1888; Hall, Key Birds Austr., p. 26, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 243, 1901; Broadbent, Ibis, 1902, p. 381; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 295, 1904; Sassi, Journ. fur Orn., 1909, p. 371, (N.Q.); A. G. Campbell, Emu, Vol. X., p. 37, 1910; Mellor, *ib.*, p. 209; Broadbent, *ib.*, p. 237; Campbell, *ib.*, Vol. XIII., p. 67, 1913; *id.*, and Barnard, *ib.*, Vol. XVII., p. 27, 1917.

Sericornis barbata Sharpe, Hist. Coll. Brit. Mus. Nat. Hist., Vol. II., p. 140, 1906.

Sericornis barbara (errore) Mathews, Handl. Birds Austral., p. 76, 1908.

Sericornis lathami lathami Mathews, Nov. Zool., Vol. XVIII., p. 353, 1912.

Sericornis lathami intermedia Mathews, *ib.*, p. 354, Jan. 31, 1912: Blackall Ranges, Queensland; *id.*, Austral Av. Rec., Vol. I., p. 59, 1912.

Sericornis lathami cairnsi Mathews, *ib.*: Cairns, Queensland.

Sericornis lathami cairnsensis Mathews, *ib.*, error only.

Neosericornis lathami lathami Mathews, List Birds Austr., p. 219, 1913.

Neosericornis lathami intermedius Mathews, *ib.*

Neosericornis lathami cairnsi Mathews, *ib.*

DISTRIBUTION. Queensland, New South Wales; ? Victoria.

* Also spelt *citreigularis*.

THE BIRDS OF AUSTRALIA.

Adult male. General colour of the upper-surface bronze-green, including the top of the head, back, and wings, becoming bronze-brown on the upper tail-coverts and tail; bastard-wing, median and greater upper wing-coverts black margined with green; primary-coverts uniform black; outer edges of some of the primary-quills yellowish-green, inner webs of flight-quills blackish-brown; a pale yellow line from the lores to the eye which widens out and extends along the sides of the crown where it becomes deeper in colour; base of fore-head and sides of face, including the eye, deep black; chin and throat uniform yellow; sides of breast, sides of body, and thighs ochreous-brown; breast and abdomen pale lemon-yellow, more or less washed with ochreous-brown; under tail-coverts white tinged with yellow; axillaries grey; under wing-coverts yellow, becoming almost white on the outer edge of the wing; under-surface of flight-quills hair-brown; lower aspect of tail similar to its upper surface but paler. Eyes brown, bill black, feet and legs light flesh. Total length 130 mm.; culmen 10, wing 69, tail 53, tarsus 30. Figured. Collected on the Tweed River, Northern New South Wales, in September 1912.

Adult female. Somewhat like the male, but has the side of the face and lores olive-green.

Immature take on the adult plumage practically from the nest.

Nest. Dome-shaped with opening about the middle and hanging by a stem from a small branch. Loosely composed of fine rootlets, with leaves and green lichen intermixed. Lined with feathers. Outside measurements including stem about 12 inches deep by 4 or 5 wide. Opening about 1 inch wide.

Eggs. Clutch two or three. White, with the larger end dark bluish, which colour merges into white at the point. 24 mm. by 17.

Breeding-season. August to December.

THIS very beautiful species was described as new by Gould, but the examination of the Lambert drawings indicated that it had been named by Latham as *Muscicapa barbata* but in this case Gould did not displace his own name by Latham's choice so that Gould's specific name continued in use until Sharpe reconsidered the Watling drawings when he unhesitatingly accepted Latham's name and proposed the usage of *Sericornis barbata*. However, I noted that Latham's *Muscicapa barbata* could not be used as it had been previously proposed for another species and reversion must have been made to Gould's name had it not been that Stephens many years before had also observed the invalid nature of Latham's name and for this species proposed *Muscicapa lathamii*.

Gould's notes are however the earliest on record and these read: "This is the largest and most attractive species of the genus (*Sericornis*) yet discovered, and so far as I am aware, its habitat is restricted to the south-eastern portions of Australia where it dwells exclusively in the districts known by the name of 'brushes.'"

Mr. J. W. Mellor has written: "This is the most common of the family in Queensland and New South Wales. I have taken specimens at Cooroy in the Blackall Ranges, one hundred miles above Brisbane, in November, 1910, when it was breeding. It was numerous in the thick tropical scrubs, hanging

YELLOW-THROATED SCRUB WREN.

its bulky nest from the 'Lawyer' vines, and from slender boughs, so that they are out of harm's way: sometimes they are placed eight or ten feet from the ground and others at a height of twenty feet. They sway about in the wind and look like bunches of dark rubbish that has collected in the trees after a flood has passed through. The nest is composed of dark rootlets and tendrils, very long and loosely made, being sometimes two feet and over, with a hole in the side, lined with fine shreds and feathers. I have also taken this bird on the Tweed River at Tumbulgum, and also in the Tuggera District between Sydney and Newcastle. The bird is very inquisitive in nature and will come hopping out of the thick undergrowth when its call is imitated with the lips: it keeps mostly to the ground, prying beneath the fallen leaves and herbage for insects, and is a very useful bird in this respect."

Mr. Edwin Ashby has also written: "I found this bird very common in the Blackall Ranges in Queensland and found a large number of their nests hanging to the festoons of 'Lawyer' vines. I do not remember seeing any in any other position. One 'Lawyer' stretching across a small rivulet had three of these nests on it, all built by this bird but two were occupied by *Acanthizas*. These nests are beautifully made and quite covered over except for a small round aperture in the upper portion of the side, an overhanging eave being built over the hole, I concluded, to suit the heavy tropical rains, while in some a little piece of bark was placed just inside the mouth of the hole apparently with a view to preventing the eggs rolling out as the nest swings in the wind. As the nest is suspended in loose trailing vines it would no doubt at times be blown into almost a horizontal position and therefore the clever little birds have adapted the nest to these conditions."

This beautiful species was known as *S. citreogularis* until Sharpe revived Latham's name *barbata*, but which proved to be preoccupied, but unfortunately Gould's name was still invalid as Stephens had provided a substitute naming the species *M. lathamii*. This specific name was then used in conjunction with the genus name *Sericornis* in my "Reference List" in 1912, but although I was adopting a lumping policy, I was doubtful of its wisdom and therefore proposed *Neosericornis* for this species alone. I admitted three subspecies as:

Sericornis lathamii lathamii (Stephens).

New South Wales.

Sericornis lathamii cairnsii Mathews.

"Differs from *S. l. lathamii* in its darker coloration above and more brown (especially on the head) and darker flank coloration, and is also less: wing 64 mm. Cairns, North Queensland."

North Queensland.

Sericornis lathamii intermedia Mathews.

THE BIRDS OF AUSTRALIA.

“ Differs from *S. l. lathamii* in its darker head : otherwise intermediate between *S. l. lathamii* and *S. l. cairnsensis* (*lapsus* for *cairnsi*). Blackall Ranges, Queensland.”

South Queensland.

These were maintained with recognition of the genus *Neosericornis* in my 1913 “ List ” as :

Neosericornis lathamii lathamii (Stephens).

Neosericornis lathamii cairnsi (Mathews).

Neosericornis lathamii intermedius (Mathews).

and are still recognised, and no additions have since been made, Campbell and Barnard even admitting the North Queensland form : “ These bright and active little birds were always seen about the ground or threading scrub near thereto. They are smaller birds and richer coloured than their more southern brethren.”

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 Errata—p. 336, line 3, for *Artarnus* read
 Artamus.

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